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**Lactation Education
for
Health Professionals**

**Edited by
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Lois A. Schaefer
Joao Yunes**

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Foreword

This publication is the result of three major endeavors: the Pan American Breastfeeding Seminar held 26-30 June 1989 at the Georgetown University School of Medicine in Washington, D.C.; the development and review of a lactation and breastfeeding education module for health professionals, which took place between July and August 1989; and the technical review of the curricular module by a group of international experts.

The seminar brought together nursing leaders, who, in collaboration with physicians, nutritionists, and educators from Latin America and the United States, discussed the importance of breastfeeding for child survival and child spacing. This group initiated the development of a core curricular module on lactation for health professionals.

Because the objective was to develop a curriculum that could be expanded to teach health professionals with a high level of education as well as adapted to train health service providers with less education, the curriculum was targeted to a mid-level audience--the student of basic nursing programs. This choice also reflects the commitment of the Latin American nurses, physicians, and educators that participated in the seminar to lead breastfeeding promotional efforts in their countries, and to implement lactation education in their schools and/or maternities.

Technical reviewers were chosen for their expertise in educational methodology, breastfeeding research, provision of breastfeeding services, and/or management. Reviewers included educators, lactation consultants, nurses, nutritionists, and physicians.

This volume includes a teaching module and scientific and support articles. The module is composed of a breastfeeding curriculum and a teachers' guide. The curriculum includes the core content areas for lactation and breastfeeding education. A unique feature of this module is that it includes a teaching unit on the Lactational Amenorrhea Method (LAM) for child spacing. This teaching unit follows the format of the module, which has

been designed in a manner that allows for easy identification of objectives, methodologies, and evaluation questions for each topic. In addition, key reference articles and guidelines for the implementation of the curriculum are included to facilitate the utilization of the lactation education module for health professionals.

The seminar was a success due to the collaboration and contribution of nursing leaders from 11 Central and South American countries. It was sponsored by the Institute for International Studies in Natural Family Planning at Georgetown University, Department of Obstetrics and Gynecology, with funds provided by the U. S. Agency for International Development (USAID) and the Pan American Health Organization (PAHO). The seminar was organized by the Education and Communication Division of the Institute and the Maternal and Child Health and Human Resources Divisions of PAHO. The publication of this volume has been made possible by the Pan American Health Organization. To all, our sincere appreciation.

R. Rodriguez-Garcia
L. A. Schaefer
J. Yunes
Editors

Acknowledgments

The development of this module and its accompanying documents is the result of a collaborative effort. The editors wish to express their appreciation to the seminar participants both for the time they spent working on the initial framework of the module and for their thoughtful reviews of the drafts that followed. The editors would also like to thank the external technical reviewers and all those who contributed to the seminar and the publication of this document. They include the following: at Georgetown University, Dr. John Griffith, Ms. Vergie Hughes, Dr. Judith Melson, and Dr. Alma Woolley; at the Institute for International Studies in Natural Family Planning, Dr. Victoria Jennings, Dr. Miriam Labbok, Ms. Ronnie Lovich, Dr. Gloria Mejia, Dr. John T. Queenan, and Ms. Karen Beck Wade; at the Pan American Health Organization (PAHO), Ms. Carol Collado, Ms. Nelly Farfan, Ms. Maricel Manfredi, Dr. Antonio Solis, and Dr. Elbio Nestor Suarez Ojeda; at the Agency for International Development, Ms. Carol Dabbs and Dr. James Shelton; at Wellstart, Dr. Audrey Naylor and Ms. Ruth Wester; at International Baby Food Action Network (IBFAN) Africa, Nairobi, Kenya, Ms. Helen Armstrong; at Siriraj Hospital, Bangkok, Thailand, Dr. Wirapong Chatranon; at the World Health Organization, Copenhagen, Denmark, Ms. Elisabet Helsing; and at Karolinska Institutet, Stockholm, Sweden, Ms. Anna-Berit Ransjo-Arvidson. A special thanks goes to Dr. Antonio Solis at PAHO, without whose continued support and assistance this publication would not have been possible. The editors would particularly like to recognize Ms. Magaly Penuela and Ms. Kristina M. Stenberg for their secretarial support.

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Introduction: A Conceptual and Practical Approach to Curriculum Development

Rosalia Rodriguez-Garcia

Scientific and technological advances, and an increasingly well-informed consumer of health-care services, call for the continual preparation of health service providers at three levels: professional, technical, and paraprofessional. Concurrently, scientific and educational research and programs contribute to the development of a body of knowledge that serves as the basis for the selection of the core content in teaching specific health topics to service providers.

Conceptually, a curricular module is designed to provide guidance to the faculty regarding the teaching methodology, resources, and evaluation criteria most appropriate for each topic of the suggested core areas. It should also provide key background and technical information. The curriculum and materials form a self-contained module that can be used independently, or parts of the module can be integrated into, or used as a complement to, other curricula.

To enhance its adaptability, such a curricular module should be targeted to mid-level health personnel, such as nursing students. In this way, according to the level of the potential student, the faculty can determine the appropriate depth and specificity with which each content area would be taught. The same would apply to the time required for clinical practice.

A curricular module is designed by those who, along with a mastery of the subject matter, possess theoretical and clinical knowledge as well as empirical experience of education and training development. Accordingly, the curriculum on lactation and breastfeeding education for health professionals presented here has been conceived as a readily adaptable, self-contained module. It has been designed by experts in the field of lactation research, education, and management; specialists in human

resources training; and professionals committed to its use and further elaboration.

The objective of this module is to provide consistent, clear, accurate, and up-to-date information on the physiology of lactation and breastfeeding. It reflects the latest results of biomedical and behavioral research and state-of-the-art breastfeeding techniques for child spacing and child survival. The module emphasizes the cognitive and practical learning necessary to initiate, supervise, and support appropriate breastfeeding practices at both clinical and community levels.

The design of the module allows it to be used with undergraduate and graduate level nursing students, as a post-graduate program for nursing or medical faculty and health and nutrition professionals, as well as for the continuing education of nurses, physicians, and other health personnel that work in maternity wards, prenatal clinics, the community, and other health service areas. When the module is used for teaching health professionals, the core content of the topic areas might need to be developed more completely, with the level of detail appropriate to the target audience. When it is used for community health workers, topics such as the anatomy and physiology of reproduction might be addressed more superficially while the topics of breastfeeding promotion and education techniques would be emphasized.

The development of educational guides such as this one involves several stages, of which the development of the structural outline and core content of the module is only the first. The second stage requires the implementation and evaluation of the module in professional schools, hospitals, or community centers. Based upon the results of these experiences, the curricular module can undergo adjustments. The third stage is directed at the integration of the module into curricula of health professionals and/or its adaptation for continuing education or specialized programs.

Throughout this process of development, evaluation, and integration, there are important activities that can lead not only

to the success of lactation and breastfeeding education, but also to the sustainability of breastfeeding promotion efforts. These interventions include:

1. Official Integration and Adaptation of the Module

The recognition by university authorities of the importance of lactation education would be reflected by the official inclusion of the curricular module into undergraduate or graduate programs of study for nurses, nutritionists, and physicians.

2. Professional Recognition

The commitment of leaders in health-care professions to the concept that nurses, physicians, and other service providers must possess the theoretical and practical knowledge necessary to support breastfeeding would be demonstrated by the following:

- Inclusion of questions on lactation in graduation and licensing examinations for nurses, nutritionists, and physicians. This is crucial to ensuring that lactation and breastfeeding education is recognized as an integral part of nursing and medical studies.
- Publication of research in the area of breastfeeding by nurses, physicians, and other health professionals. This will serve to create a body of knowledge to serve as a solid basis for breastfeeding interventions as well as to educate and motivate their colleagues.
- Organization of health services to ensure that students have the opportunity to practice teaching breastfeeding techniques to mothers in maternity wards, clinics, and the community.
- Organization of breastfeeding promotion seminars for nurses, physicians, and other service providers.

3. Maternal and Child Health Policy Making

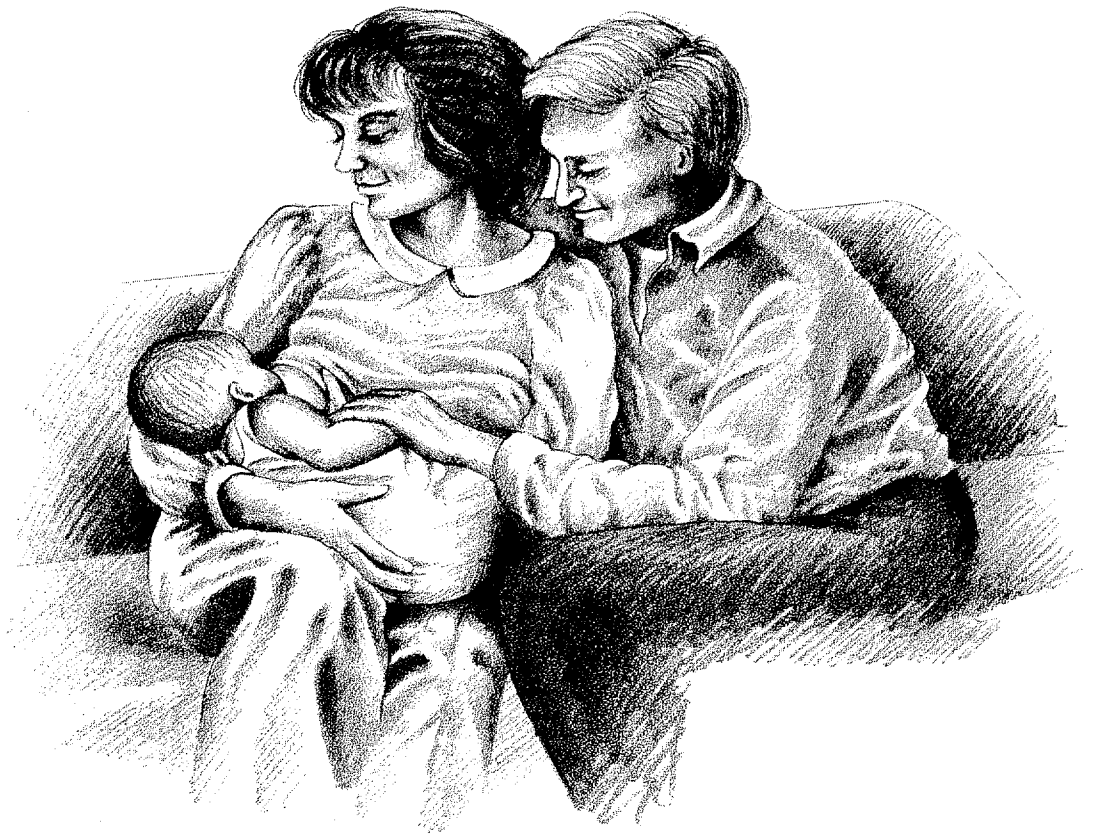
The recognition by national health authorities of the importance of breastfeeding, and the creation of

collaborative programs between health services, the community, nursing, medical and nutrition schools, and private organizations, would stimulate demand for breastfeeding information and services. This, in turn, is likely to influence the establishment of national health policies to support and favor the practice of breastfeeding in hospitals, homes, and the workplace.

While no one strategy or activity alone can ensure the success of curricular change, I believe that the multidisciplinary team approach applied to the development of this module will increase its impact. The likelihood that the module will achieve context relevant results and improve the sustainability of breastfeeding education efforts is enhanced by utilization of this developmental process.

PART I

**A CURRICULAR MODULE ON LACTATION
EDUCATION**



Guidelines For Teachers

Rosalia Rodriguez-Garcia and Lois A. Schaefer*

As previously mentioned, this lactation education curriculum has been targeted primarily for undergraduate nursing students. This is for the purpose of facilitating its adaptation to teaching health personnel with varying levels of education. The guidelines for teachers, therefore, are directed to nursing faculty.

These guidelines provide an overview of the terms of reference used for the development of this prototype curriculum on lactation and breastfeeding education.

THE IMPORTANCE OF LACTATION EDUCATION

The health situation in many countries is characterized by high maternal and infant morbidity and mortality, most of which is preventable. Rodriguez-Garcia and Schaefer's review article (see pages 125-151) notes that children, especially infants under one year of age, continue to be the victims of malnutrition, infectious diseases, and psychosocial problems. These problems have multiple, interrelated causes, such as socioeconomic and cultural factors, biological vulnerability, and factors related to the provision of services. The authors point to processes of urbanization, the entry of mothers into the work force in increasing numbers, early weaning, the scarcity of institutions that facilitate breastfeeding, and the impact of readily available and strongly promoted milk substitutes as having serious negative effects on the well-being of children and their mothers.

The practice of breastfeeding has declined despite recognition throughout the world that breastfeeding is effective for birth

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spacing¹ and is of fundamental importance for a child's normal growth and development. One basic cause for this decline is that health institutions in some countries have developed routines and practices that are detrimental to the practice of breastfeeding, such as the separation of newborns and mothers; the use of supplementary formula, water, and teas; establishment of rigid feeding schedules; and distribution of free formula samples. The situations created by these practices do not support the objectives of many national programs to improve maternal and child health.

Another factor contributing to both the decline in breastfeeding and harmful institutional practices is found in training and continuing education programs in the health field. Training institutions often include anatomy and physiology of the mammary gland and mammary pathology in their curricular units, without presenting the physiology of lactation or breastfeeding within the scope of these topics. The article by M. Manfredi (see pages 192-196) points out that maternal and child health education programs have traditionally focused on lactation without emphasizing either its long-term benefits or the practical experience necessary to successfully manage and teach breastfeeding. There is no established, systematized instrument for the teaching of lactation management and breastfeeding within the discipline of maternal-child health (much less in other health fields) that would allow the nurse or the physician to offer well-integrated care that has a sound scientific and technical base.

In an attempt to positively influence the practice of breastfeeding, government, private, philanthropic, religious, and other organizations have developed a series of activities to promote breastfeeding. Unfortunately, these activities are frequently limited in scope due to financial and/or organizational constraints and lack the support and collaboration at the highest administrative levels needed to ensure their success. Consequently, these isolated efforts do not have the desired impact, and there is still a high incidence of early supplementation and weaning.

¹In this curricular module, child spacing and birth spacing are used interchangeably, and both are synonymous with family planning.

As noted, the methodological strategies of education and health services used to encourage breastfeeding have been less than adequate. Activities to promote breastfeeding should be carried out at the hospital and community levels, with ongoing coordination between teaching and health facilities. Active participation by mothers, families, and communities should be sought.

TARGET AUDIENCE

This module is based on principles of nursing practice and was developed within a framework of nursing education so that it can be incorporated into the basic, undergraduate curricula of nursing schools. It can also serve as a guide for postgraduate and continuing education programs for health professionals and service providers.

PURPOSE

Students trained with this module will be able to teach mothers optimal breastfeeding and weaning techniques. These students will also be able to develop, within the health team, leadership skills aimed at the promotion, acceptance, initiation, maintenance, and protection of breastfeeding. This can be accomplished through innovative, timely, and appropriate educational and service delivery strategies that encourage active participation by individuals, families, and communities to benefit mothers and children for improved health and well-being.

TEACHING OBJECTIVES

- to facilitate students' acquisition of knowledge of and positive attitudes toward breastfeeding and to facilitate the students' development of essential breastfeeding teaching and management skills in order to advance nursing leadership in the promotion of breastfeeding as an essential element for infant survival and birth spacing
- to equip students with the skills needed to teach breastfeeding techniques to mothers

- to provide students with basic concepts and methodologies that will enable them to include breastfeeding promotion activities in prenatal, postnatal, and maternity programs
- to encourage students to participate in research on lactation management and breastfeeding techniques
- to equip students with the communication and teaching skills needed to promote breastfeeding at the hospital and community levels and to educate the community
- to encourage students to seek ongoing coordination between teaching and health facilities, while promoting the active participation of mothers, families, and communities in breastfeeding promotion

LEARNING OBJECTIVES

At the end of this training, students will be able to

- apply the acquired knowledge and skills to assisting mothers in the initiation and management of breastfeeding and weaning
- demonstrate leadership skills in promoting the practice of breastfeeding as an effective method for birth spacing and as the way to provide complete feeding to infants, safeguard their health, and encourage their growth
- organize and conduct breastfeeding education seminars for other service providers
- participate in the development of breastfeeding promotion projects
- plan and implement breastfeeding services in clinical sites

DEFINITIONS OF TERMS

In child survival programs and policy-making activities that affect maternal and child health, emphasis is given to the practice of exclusive breastfeeding during the first six months of a child's life. For a better understanding of this distinction, it will be necessary to define a few basic concepts.

In its most general meaning, *breastfeeding* refers to the manner in which a child is fed with milk directly from the mammary gland. This definition can then be refined further into more specific classifications, such as exclusive and partial breastfeeding. As Rodriguez-Garcia and Schaefer describe in their article (see pages 121-151), the terms *exclusive or complete breastfeeding* are used when the baby is fed exclusively with mother's milk, with no additional solid or liquid food, and *partial breastfeeding* is used when the baby receives liquid and solid food in addition to breastfeeding. According to the definition used in research conducted by Dr. Vera Vinha in Brazil (personal communication, June 1989), breastfeeding is the ingestion of mother's milk by a variety of methods. *Supplementary or complementary feedings* are those liquid or solid foods that are given to the infant in addition to breastmilk. These feedings are not necessarily given to replace breastfeeding but in response to a variety of cultural, traditional, nutritional, or other factors. *Weaning* is the process initiated when foods other than breastmilk are introduced with the purpose of ending breastfeeding.

Promotional activities are essential to increasing the incidence and duration of breastfeeding. In this volume, *promotion* is defined as the set of activities aimed at furthering the acceptance and practice of breastfeeding at the local, national, regional, or international level (Rodriguez-Garcia & Schaefer (see pages 121-151). *Rooming-in* means to accommodate the mother and newborn in the same room from the time of delivery. This may occur in a hospital unit, health institution, the home, or wherever perinatal care is given.

THE ROLE OF NURSES IN BREASTFEEDING PROMOTION AND EDUCATION

In recent years there has been considerable discussion of the changes and innovations needed in education and health service

sectors in order to make an effective contribution to the goal of health for all by the year 2000. With regard to breastfeeding and lactation management, nurses can play a fundamental role in promotion and in the education of service providers.

Nurses are key facilitators of the interface between individuals and the health system and, as such, are the agents called upon to assume a leading role in the adoption and maintenance of optimal breastfeeding practices in community and hospital settings. They are directly involved in the care of women in different stages of their maternal cycle, when information and adequate support would influence a woman's decision to initiate and continue breastfeeding. By virtue of their training, nurses are equipped to undertake research on the physiology of lactation, lactation management, and breastfeeding techniques. Because they are responsible for the promotion of optimal health care, they have the potential to exercise leadership in breastfeeding promotion.

The need to have adequate and correct information and a positive attitude toward breastfeeding as prerequisites for its promotion and development has already been affirmed. Nurses, as health professionals with a significant opportunity to establish a direct relationship with the mother, are the agents called upon to assume a leading role in mothers' adoption and maintenance of optimal breastfeeding practices in community and hospital environments.

For nurses to assume their proper role in the promotion, initiation, and management of breastfeeding, and the supervision of lactation management services, it is essential that nursing schools and clinical services unite in their efforts. To achieve change geared toward modifying or strengthening nursing practice in the area of breastfeeding, it is necessary to influence future nurses from the time that they begin their education. To facilitate the change process, therefore, it is necessary to ensure the inclusion of curricula on lactation and breastfeeding in nursing education.

As Manfredi states in her article (see pages 192-196), nurses' training in Latin America has undergone great change in the past 20 years, attempting to adapt to the health needs of the population

and to new approaches to health services. It is important to recognize the flexibility of the nursing profession in responding to the demands brought about by changes in science and technology.

Nurses already have the experience of being agents of change as well as responsive to change. They should be encouraged to apply this experience to improving breastfeeding practices. To be fully effective in this role, lactation education must be given the place it deserves in nursing curricula.

Methodological Orientation

This module is intended as a guide to facilitate the inclusion of essential lactation and breastfeeding information, with emphasis on exclusive breastfeeding during the first 6 months of life, in undergraduate nurses' education. It is organized in interrelated units covering the biological, psychological, technical, and sociocultural aspects of breastfeeding, with the focal point of each unit being nursing interventions. Each unit includes objectives, core content, teaching methods, material and human resources, and evaluation criteria, so that, depending on the features of the educational program in which the module is being implemented, the faculty may easily adapt the curriculum to address the specific learning needs of the target audience.

The objectives identified in the curriculum are learning objectives; that is, they specify what behaviors and accomplishments are expected of the student upon completion of the unit or a particular portion of the unit. As the module is designed to be used in different educational situations, the objectives may need to be adjusted according to the level of the target audience in order to facilitate development of the core content and evaluation plan.

As presented, the core content identifies the key material that the student must master in order to fulfill the objectives. The individual items are written in a concise and succinct manner; they serve as prompts to the teacher regarding points to be covered. It is left to the teacher to decide the amount of detail and attention to be given to each, according to the needs of the students. It will be noted that there are instances where topics are covered in greater detail and comprehensiveness. These are areas for which material may be difficult to find and/or areas in which information is changing very rapidly.

Regarding teaching methodologies, audiovisual and print materials, and other necessary resources (which include human resources, classrooms, funding, approvals, and the like), it should be pointed out that the items noted in these columns frequently apply to the entire teaching unit. Therefore, even though they are listed only at the beginning of the unit and not repeated for each objective or content area, they are still valid and

can be utilized in developing the teaching plan. Where a methodology or resource is particularly well-suited to a specific aspect of the content, it is aligned with that item. It should also be noted that the teacher is not limited to or by these suggestions. In each learning situation it may be possible and desirable to identify unique strategies and resources that are not mentioned in the curriculum.

In the area of criteria for or plan of evaluation, faculty will develop and test questions for written exams and develop protocols for oral exams, classroom practice, and the assessment of clinical performance. It is recognized that there are a wide variety of methodologies appropriate to the evaluation of learning. Each situation will lend itself more readily to some types than others, and careful selection and utilization of a number of different methodologies is encouraged. In this module, the evaluation focuses on questions (both written and oral), rather than specific situations, because of the questions' universal applicability. The sample questions presented here are neither exhaustive nor closed to change. For example, if a question asks for 3 factors related to the decline of breastfeeding, the number 3 was chosen for convenience and could just as easily be 2 or 4, or whatever is most appropriate to the level of the learner, to the core content as it was presented, and to the needs of the teacher. Generally, questions were placed adjacent to the content item to which they relate, but this might not be the case in questions that are more comprehensive and/or seek synthesis of several topics.

To facilitate the implementation of the module and strengthen the link between training and the practice of breastfeeding for birth spacing and child survival, the educator should

- announce and disseminate the module among teaching and health service personnel in each country and encourage the organization of local seminars
- incorporate the contents of the module into the theoretical and practical components of undergraduate health professional curricula
- engage officials at universities, health services, and professional organizations in the promotion of exclusive breastfeeding for at least 6 months postpartum

- seek commitment from nursing, medical, and other leaders in the region to recognize and promote breastfeeding and to disseminate information about it
- encourage the inclusion of questions about breastfeeding in graduation exams, qualifying exams, and professional licensing
- promote the collaboration of faculty and service personnel in the organization of education and services
- contribute to the organization of continuing education and in-service training events on lactation management by physicians, nurses, and other service providers
- create links or cooperative programs with international agencies, universities, health services, private groups, and the community to encourage the practice of rooming-in at hospitals and the practice of breastfeeding in the home and workplace
- become a source of accurate information for interested health professionals, educators, and lay people in matters concerning breastfeeding
- undertake and/or participate in multidisciplinary research projects geared toward expanding the scientific knowledge base of lactation and of breastfeeding behavior

Lactation Content Outline

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Curriculum

Unit I. History of Breastfeeding (BF) Practices

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Describe the existing BF practices in light of their historical development	1. BF in traditional societies	Lectures	Handouts	Sociologists Anthropologists Historians	What was the impact of industrialization on BF practices?
		Historical case studies	Posters		
	2. BF in the ancient world: Africa America Asia Europe	Group discussion	Slides and projector	Local health practitioners	Describe the current status of BF practices in this country and anticipated future trends. Include characteristic BF practices.
		Small group discussion	Transparencies and overhead projector		
		Review of research, international and national	Blackboard		
3. Traditional BF patterns		Review of readings	Maps, graphs, charts, etc.	Conference room, small rooms for group work	
4. Changes in BF patterns due to industrialization		Printed materials	Flipcharts and markers		
5. History of BF in _____ (name of country) a) traditional BF practices in the country					

Unit II. Sociocultural, Technological, and Political Factors that Influence BF Practices

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Explain the impact of modern society on the role of women and traditional BF behaviors	<ol style="list-style-type: none"> The role of women in traditional society and the influence of modern society <ol style="list-style-type: none"> woman's work and the separation of mother and child woman as a maternal symbol woman as a sexual symbol <ul style="list-style-type: none"> breast itself youth family planning Traditional practices and beliefs relating to birth and the postpartum period, and the nutrition of the lactating mother 	<p>Lectures</p> <p>Small group work</p> <p>Large group discussion</p> <p>Review of research</p> <p>Review of readings</p> <p>Presentations by empirical mid-wives and/or other community health workers and specialists in traditional beliefs and practices, with demonstrations</p> <p>Student interviews with mothers and other community members to identify folk beliefs and practices</p>	<p>Written handouts</p> <p>Graphs, tables, diagrams, charts</p> <p>Flipcharts and markers</p> <p>Slides and projector</p> <p>Transparencies and overhead projector</p> <p>Movies, videos</p> <p>Interview guides</p>	<p>Sociologists Psychologists</p> <p>Midwives, doulas, traditional healers</p> <p>Conference room, small rooms for group work</p> <p>Approval for the participation of non-university staff</p> <p>Approval for visits to the community and permission for observation</p> <p>Funds for transportation</p>	<p>Describe how modern society has changed the role of women in the areas of:</p> <ol style="list-style-type: none"> women and work the woman as a sexual symbol BF in public. <p>Identify 3 traditional practices or beliefs relating to lactating women and describe their impact on BF practices.</p>
B. Explain the influence of technological change on child rearing and the nutrition of the mother/child unit	<ol style="list-style-type: none"> The influence of modern society on the birth process and postpartum period, and the nutrition of the lactating mother 				Analyze the impact of the introduction of bottles and formula on the practice of BF in this country.

Unit II. Sociocultural, Technological, and Political Factors that Influence BF Practices (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. (cont.) Explain the influence of technological change on child rearing and the nutrition of the mother/child unit	1. (cont.) a) hospital deliveries b) the working mother c) separation of mother and infant d) food consumption patterns				Describe how technological progress in medicine and health care have altered the birth experience for women and infants. Include positive and negative factors.
	2. Traditional practices and beliefs regarding child raising and the impact of modern society a) introduction of bottles/formula b) weaning practices	Observation of practitioners of traditional medicine in the community Development of strategies for dealing with folk beliefs and practices Role playing	Observation guides		Identify three folk beliefs or practices relating to child rearing and describe their impact on BF practices.
	3. Traditional medicine and its impact on BF a) empirical midwives b) doulas c) medicines	Brainstorm with students to identify their own beliefs and biases	Materials used in traditional medicine	Funds for materials if necessary	

Unit II. Sociocultural, Technological, and Political Factors that Influence BF Practices (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
C. Identify and analyze institutional changes in modern society and their influence on BF	1. The impact of modern health services on BF a) maternal-child health programs b) their objectives and goals c) strategies for achieving these goals d) implementation of strategies, and the resources available e) promotion of BF f) the dichotomy between official norms of service delivery and actual service delivery practices g) family planning programs and their impact	Observation of institutions and their BF activities Group discussion Presentations by health professionals in the maternal-child health/ family planning (MCH/ FP) system	Observation guide Movies, videos Handouts Copies of institutional norms and policies	Approval of the institutions for observation Maternal-child health/ family planning professionals	What are some of the strategies that MCH/FP programs can use to promote BF? Are they being used? If "yes", what changes in BF practices have been observed?
D. Identify legal, political, and community factors that influence BF practices	1. Laws that protect mothers and BF a) coverage b) extent to which they are implemented c) ethical considerations	Review of existing laws by lawyers, citizens, groups	Copies of laws, policies, legislation	Lawyers specialized in this area Members of citizen action groups	

Unit II. Sociocultural, Technological, and Political Factors that Influence BF Practices (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
D. (cont.) Identify legal, political, and community factors that influence BF practices	2. National BF Commission and/or similar groups a) what exists b) types and extent of activities	Presentation by members of the Commission or other groups Group discussion	Copies of Commission or other groups' documents	Commission and other groups materials	
	3. Community structures that support BF a) mother's clubs b) support groups c) child care facilities	Community observation Presentations by leaders and members of the community groups Group discussion	Observation guide	Leaders and members of community groups Public health nurses Health promoters Midwives	Give examples of structures that support BF at the local, national, and international levels. What are the activities, achievements and limitations of community structures that support BF?
	4. The role of men in community decision making and its impact on BF a) male attitudes towards women and/or BF b) male support of BF				

Unit III. Current Status of Maternal and Child Health (MCH) in the Country and Risk Factors for MCH

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Describe the maternal-child population	1. Biopsychosocial profile of women of childbearing ages <ol style="list-style-type: none"> biological characteristics psychosocial and cultural characteristics epidemiological aspects the socioeconomic and educational level of the mother and their impact on BF practices women's characteristics during <ul style="list-style-type: none"> • pregnancy • birth • postpartum • lactation 	Lectures Presentations by specialists in the topic Review of research Review of reading Group discussion	Books, graphs, charts, diagrams Flipcharts and markers Slides and projector Transparencies and overhead projector Statistical data	Conference room, small rooms for group work Sociologists Researchers Medical and nursing faculty and service personnel Epidemiologists	Analyze how the socioeconomic level of the mother impacts on BF practices. Interpret statistical data on maternal and infant mortality as it relates to BF data.
B. Diagnosis of the status of maternal-child health	1. Profile of the infant/child (0-2 years) <ol style="list-style-type: none"> characteristics of growth and development of the BF child 	Comparison of case studies of breast and bottle-fed infants		Child growth and development specialists	What factors influence the morbidity and mortality of the infant/child (0-2 years) and how?

Unit III. Current Status of Maternal and Child Health (MCH) in the Country and Risk Factors for MCH (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. (cont.) Diagnosis of the status of maternal-child health	1. (cont.) b) characteristics of growth and development of the bottlefed child c) patterns of morbidity and mortality of the BF child d) patterns of morbidity and mortality of the bottlefed child e) psychological aspects, for example, level of abuse and abandonment according to feeding practices				Name at least three characteristics of the growth and development of the BF child.
C. Explain the role of weaning practices as a risk factor for the mother's and child's health	1. Descriptions of various weaning practices	Lecture Group discussion		Nutritionists Lactation clinicians	Describe different weaning practices and explain why some are considered a risk factor for mother and child.

Unit III. Current Status of Maternal and Child Health (MCH) in the Country and Risk Factors for MCH (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
C. (cont.) Explain the role of weaning practices as a risk factor for the mother's and child's health	2. Effects of weaning on infant morbidity and mortality <ul style="list-style-type: none"> a) immunologic b) psychologic c) nutrition d) life expectancy 3. Effects of weaning on the mother <ul style="list-style-type: none"> a) contraception b) psychological impact <ul style="list-style-type: none"> • separation of mother and infant • may be seen as "failure" by mother/others--viewed as rejection, loss of control 	Review of research Case studies	Statistical data	BF researchers	Indicate what weaning plan you would recommend to mothers and explain why.

Unit IV. Biological and Psychosocial Aspects of BF

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Describe the psychosocial effects of BF for the mother	1. Psychosocial advantages for the woman a) bonding b) security c) self-image d) sexuality e) self-realization f) convenience	Review of research	Videos, movies	Faculty and service personnel	Explain the biopsychosocial advantages of BF for the mother, child, and society.
		Group activities with BF mothers	Transparencies and overhead projector	Permission for participation of BF mothers	
		Group discussion	Slides and projector	Psychologists Sociologists	
B. Explain the biological effects of BF for the mother	1. Biological advantages for the mother a) uterine involution b) prevention of hemorrhage and puerperal infections c) lowered incidence of breast and ovarian cancer d) amenorrhea and birth spacing e) mood alteration and effects of prolactin f) quicker return to antepartum weight	Lectures with specialists in the topics	Graphs, charts, tables, diagrams	Conference room, small rooms for group work	Written and oral analysis of the advantages and disadvantages of BF in the case study of a specific family situation.
		Panel discussion	Statistical data	Obstetricians Gynecologists Lactation clinicians	

Unit IV. Biological and Psychosocial Aspects of BF (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
C. Describe the psychosocial effects of BF on the child	1. Psychosocial advantages for the child a) socialization and security b) early stimulation and sensory development c) bonding d) ability to show affection	Comparison of case studies of breastfed and bottle-fed infants Observation	Observation guide	Approval for observation Funds for transportation	Analysis of case studies
D. Explain the biological effects of BF on the child	1. Biological advantages for the child a) immunological protection b) nutrition c) hydration d) prevention of: - otitis media - broncho-aspiration - obesity - allergies e) contributes to adequate maxillo facial structure	Review of research and readings	Statistical data Graphs, charts, tables, diagrams	Pediatricians	Analysis of case studies

Unit IV. Biological and Psychosocial Aspects of BF (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
D. (cont.) Explain the biological effects of BF on the child	1. (cont.) f) appropriate milk temperature g) rapid, easy digestion h) milk is free of pathogens				
E. Describe the effects of BF on the family	1. Advantages for the family a) integration b) savings of money and resources • healthier children, fewer medical expenses • no need to buy formula • more money for maternal/ family nutrition c) may be easier to feed the baby when outside the home	Interviews with lactating mothers and their families Testimonials	Interview guides	Family agreement for interviews	For what reasons did the family(ies) interviewed choose BF? What do they perceive as the advantages/disadvantages?

30 Unit IV. Biological and Psychosocial Aspects of BF (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
F. Describe the effects of BF on society	1. Advantages for society a) increased life expectancy b) decreased abandonment, abuse and violence c) less spending of national monies d) decreased reliance on outside assistance e) saving of national resources <ul style="list-style-type: none"> • water • fuel • milk/formula imports 	Review of research and readings Testimonials by social/ community leaders	Charts, graphs, tables, diagrams Statistical data	Educators Economists Sociologists Social workers	Explain why BF is advantageous for society.
G. Indicate the perceived disadvantages of BF	1. Perceived disadvantages of BF a) too much trouble b) mother is tied down c) BF is painful	Review of interviews with families Brainstorming by students Testimonials by mothers		Lactating mothers Mothers who have never breastfed Lactation clinicians	Identify several perceived disadvantages of BF.

Unit IV. Biological and Psychosocial Aspects of BF (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
G. (cont.) Indicate the perceived disadvantages of BF	1. (cont.) d) baby cried too much e) mother did not have enough milk f) difficult for single mother with no support g) BF takes too much time			Mothers with a variety of BF experiences	

32 Unit V. Anatomy of the Breast and the Physiology of Lactation

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Identify the external and internal structures of the breast	1. Identification and definition of: a) superficial anatomy b) support structures c) nipple and areola d) nerves e) vascular and lymphatic drainage	Lectures Presentations by specialists in the topic Laboratory session with models	Graphs, diagrams, drawings Slides and projector Transparencies and overhead projector Models, mannequins	Conference rooms Pathologists Pediatricians Obstetricians Gynecologists Medical faculty Nursing faculty	Given the following diagram, identify the internal and external structures of the breast. Explain the function of specific parts of the breast.
	2. Characteristics of the anatomical structures a) innervation b) blood flow	Review of research and readings	Books	Approval for lab session with life models	
	3. Development of the breast a) prepubertal growth b) during puberty and adolescence c) normal, non-pregnant state d) modifications during the menstrual cycles				

Unit V. Anatomy of the Breast and the Physiology of Lactation (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. (cont.) Identify the external and internal structures of the breast	4. Biological and hormonal changes during: a) pregnancy b) lactation				
B. Explain the functioning of the glandular structure of the breast and the neuroendocrine reflexes that intervene in milk production	1. Role of hormones that intervene in the production and ejection of milk a) prolactin b) oxytocin c) estrogen d) progesterone e) others 2. Mechanisms in the production and secretion of milk a) in the child • rooting reflex • suckling reflex • swallow reflex b) in the mother • nipple erection • production reflex • let-down reflex • supply and demand	Observation of a mother breastfeeding	Video and monitor Movie and projector	Agreement of lactating mother and child for observation	Explain the role of hormones and mother/child reflexes in the production, secretion, and ejection of milk.

Unit V. Anatomy of the Breast and the Physiology of Lactation (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. (cont.) Explain the functioning of the glandular structure of the breast and the neuroendocrine reflexes that intervene in milk production	3. Analysis of breast-milk a) composition b) biochemical values c) stages <ul style="list-style-type: none"> • colostrum • transitional • mature 				
C. Identify the factors that affect the production and ejection of milk	1. Factors that affect the production and ejection of milk a) stress b) fatigue c) emotional factors d) baby's nursing habits <ul style="list-style-type: none"> • frequency • duration • adequacy of suckling • adequacy of position • structural abnormalities in baby's mouth • medications • nutrition and health of the mother 	Analysis of case studies	Case study guide		Identify three factors that can interfere with milk production and ejection and explain their effects. Describe how to overcome them.

Unit V. Anatomy of the Breast and the Physiology of Lactation (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
C. (cont.) Identify the factors that affect the production and ejection of milk	2. Techniques for managing the factors named in C.1.				

Unit VI. Nutrition of the Mother and Child During Lactation

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Identify and analyze the nutritional requirements of the mother during lactation	1. Maternal nutritional requirements during lactation a) calories b) protein c) iron d) calcium e) vitamin A f) vitamin C g) vitamin B h) niacin i) folic acid j) water	Lectures by specialists Review of research Review of readings	Graphs, tables, diagrams of nutritional requirements Transparencies and overhead projector Slides and projector	Faculty Nutritionists Conference room	List the nutritional requirements of a lactating mother.
B. Determine the appropriate food and fluid intake for a lactating mother	1. Maternal nutrition and its effect on the volume and composition of milk produced 2. Influence of BF on the nutritional status of the mother 3. General recommendations regarding maternal eating habits during lactation				Explain the role of the mother's nutritional habits in milk production and her infant's nutrition.

Unit VI. Nutrition of the Mother and Child During Lactation (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. (cont.) Determine the appropriate food and fluid intake for a lactating mother	3. (cont.) a) foods that can cause gas/loose bowels in the child 4. Special considerations for the adolescent mother				
C. Recommend adequate nutritional practices to a lactating mother	1. Steps in carrying out a) nutritional history b) observation of dietary practices in the home c) 24-hour recall d) identification of nutritional deficiencies 2. The typical diet in the region/country a) common deficiencies b) folk beliefs about diet	Practice in small groups of the 3 techniques and interpretation Possible visits to community Analysis of case studies	Implementation and interpretation guidelines Case study guidelines Flipcharts and markers Lists of the nutritional content of common foods Pictures/samples of common foods	Approval/funds for trip to the community Nutritionists	

38 Unit VI. Nutrition of the Mother and Child During Lactation (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
C. (cont.) Recommend adequate nutritional practices to a lactating mother	3. Foods available in the region/country, their nutritional value and their costs 4. Specific recommendations to correct the most common dietary deficiencies in the region/country				Elaborate a nutritional plan for a lactating mother, utilizing the locally available foods and taking into consideration the economic resources of the family.
D. Describe the nutritional requirements of the BF child	1. Nutritional requirements of the child while BF a) the first 4-6 months, breast-milk only • hydration b) after 6 months, introduction of other foods with BF 2. Infant growth patterns a) with breastmilk only b) with formula	Analysis of cases Group work	Tables, charts, slides, transparencies Growth charts of BF and bottle-fed infants	Pediatricians	Identify the nutritional requirements of the BF child who is three months old.

Unit VI. Nutrition of the Mother and Child During Lactation (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
E. Explain the importance of exclusive BF for the first 4-6 months of life	1. Comparison of human breastmilk with other milks and substitutes		Table of the composition of breastmilk, other milks and substitutes	Nutritionists	Develop a table comparing human milk, other milks, and substitutes.
F. Recommend the dietary intake that the child requires after 6 months, in addition to breast-milk	1. Complementary foods: a) traditional practices b) the introduction of appropriate solids and liquids (specific recommendations)	Presentations by community health workers and health professionals		Midwives Public health specialists Health promoters Nutritionists	Develop dietary plans for a 7 month and 1 year old child, utilizing the foods commonly available and in line with the family's economic resources.
	2. Weaning a) traditional practices b) directed by the child c) directed by the mother	Lectures with specialists, weaning mothers Work in small groups Group discussion Analysis of cases	Case study guides	Weaning mothers and permission for their participation	

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Identify the physiological changes that occur in the woman during lactation and relate these to the sexual activity of the couple.	<ol style="list-style-type: none"> 1. Physiological changes in the reproductive organs 2. Their impact on sexuality and sexual activity <ol style="list-style-type: none"> a) physical <ul style="list-style-type: none"> • vaginal dryness • decreased sexual encounters • decreased libido • breast leaking b) psychological <ul style="list-style-type: none"> • in the woman -decreased libido -decreased sexual encounters • in the man c) cultural taboos and practices d) male's role in the couple's sexuality during lactation 	<p>Lectures with specialists</p> <p>Group discussion, individual interviews with mothers and their partners</p> <p>Review of research and readings</p>	<p>Videos, movies</p> <p>Handouts</p>	<p>Psychologists</p> <p>Faculty</p> <p>Conference room</p> <p>BF couples and permission for their participation</p>	<p>How does BF affect the couple's sexual activity?</p>

Unit VIII. Lactation and Birth Spacing: The Lactational Amenorrhea and Other Methods

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Explain the impact of BF on birth spacing	<p>1. Impact of BF on population fertility</p> <p>a) BF vs. other family planning (FP) methods</p> <p>b) decreased BF leads to increased fertility</p> <p>2. Physiology of lactational infertility</p> <p>a) impact of nipple stimulation on hypothalamic-pituitary-ovarian feedback mechanisms</p> <p>3. Lactational amenorrhea vs. lactational menses</p> <p>a) probability of conception during amenorrhea vs. during menses</p> <p>b) within 6 months postpartum</p> <p>c) after 6 months postpartum</p>	<p>Lecture with specialists</p> <p>Review of research and readings</p> <p>Group discussion</p>	<p>Graphs, tables, charts, diagrams</p> <p>Demographic data</p> <p>Slides and projector</p> <p>Transparencies and overhead projector</p> <p>Drawings, models</p>	<p>Faculty</p> <p>Gynecologists</p> <p>Obstetricians</p> <p>Lactation clinicians</p> <p>Researchers</p>	<p>Briefly describe the physiology of lactation as it applies to fertility.</p>

Unit VIII. Lactation and Birth Spacing: The Lactational Amenorrhea and Other Methods (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. Explain the Lactational Amenorrhea Method (LAM), including criteria for its use; the method's efficacy; instructions for its effective use; and timely introduction of complementary family planning	1. Criteria for the use of LAM a) algorithm to achieve 98% efficacy	Interviews with health professionals, traditional health practitioners and mothers about their views on BF for child spacing	Interview guides Guidelines for the use of LAM	Traditional health practitioners Traditional birth attendants	What are the 3 criteria for the use of LAM?
	2. Recommendations for the effective use of LAM a) success depends on pattern of BF b) optimal BF behaviors	Small group discussion of issues involved in use of LAM Analysis of case studies	Copies of the algorithm Case studies	Mothers with a variety of experiences with BF and fertility	What BF behaviors are important to the effective use of LAM?
	3. Transition from discontinuation of LAM to complementary FP method				
	4. Recommendations for patient counseling and education in LAM a) information to be covered b) special considerations	Practice counseling sessions Role playing	Counseling guides and checklist Permission for interviews	Counseling specialists Educators	

Unit VIII. Lactation and Birth Spacing: The Lactational Amenorrhea and Other Methods (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
C. Describe the various family planning methods, and their interaction with BF	1. Methods of family planning and their use during breastfeeding <ul style="list-style-type: none"> a) use of hormonal methods during lactation b) LAM and the initiation of complementary FP methods c) review of specific FP methods and the advantages and disadvantages of each in relation to BF 	Presentation of individual methods by students	Samples of family planning methods	Family planning professionals and service providers	What methods of family planning are considered "complementary" to lactation? When should they be started?

Unit IX. Clinical Skills for the Initiation and Management of Lactation

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Teach mothers about BF and BF techniques	Prenatal				
	1. Mother's medical and social history	Lectures with specialists	Diagrams, drawings	Faculty	Given the following case study, develop a medical and social history for the pregnant woman and an appropriate care plan.
	a) evaluation of physical and mental health of the pregnant woman	Observation of a prenatal class for mothers	Transparencies and overhead projector	BF specialists	
	b) diagnosis	Classroom	Slides and projector	Lactation clinicians	Develop the content for a prenatal BF class for pregnant women.
	c) plan of interventions	demonstration and role playing	Observation guides	Health educators	
	d) reevaluation	Clinical observation and practice	Models, mannequins, videos, movies	Obstetricians	Clinical observation of student's performance.
	2. Education and information re:			Gynecologists	
	a) advantages and disadvantages of BF			Pediatricians	What is the prenatal care for normal nipples? inverted nipples? flat nipples?
	b) clarification and correction of myths, folk beliefs, and taboos			Lactating mothers and babies and their approval for observation and practicum	
	c) the importance of BF as soon after delivery as possible			Approval of clinical areas and class for observation	
	d) importance of colostrum			Conference room	
	e) positions and techniques of BF			Funds for models, dolls	
	f) the role of the father in BF			Pregnant women	
				Community women elders	

Unit IX. Clinical Skills for the Initiation and Management of Lactation (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. (cont.) Teach mothers about BF and BF techniques	2. (cont.) g) nutrition of the lactating mother (Refer to Unit VI) h) examination and evaluation of the breasts and nipples i) care of the breast and nipple j) special care of the different types of nipples <ul style="list-style-type: none"> • inverted • flat Postnatal				
B. Manage the initiation and continuation of BF	1. Encourage first feeding as soon as possible after birth <ul style="list-style-type: none"> a) use of colostrum b) frequent, on-demand feedings thereafter 2. Encourage rooming-in for frequent on-demand feedings	Observation of institutional and community practices		BF mothers and their babies/approval for participation Members of La Leche League and other support groups Lactation consultants Obstetricians Pediatricians	Evaluate the technique used by a new mother and indicate/take the appropriate actions.

Unit IX. Clinical Skills for the Initiation and Management of Lactation (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. (cont). Manage the initiation and continuation of BF	3. BF techniques and positions a) face to face b) lying down c) sidesitting d) with a cesarean section e) initiation of rooting reflex f) attachment g) removal from the breast h) burping i) frequency and duration: on-demand, until the baby finishes, alternate breast used first in each feeding j) methods to rouse a sleepy baby k) participation of the father	Clinical observation and practice Demonstrations Review of research and readings Lectures with specialists Videos, movies	Models, dolls, mannequins, drawings and diagrams Observation guides		Demonstrate a correct technique for positioning and removing the baby at the breast.
	4. Examination and evaluation of the breast and nipple for common problems	Clinical observation and practice Analysis of case studies	Transparencies and overhead projector		Explain and demonstrate how to deal with the most common breast and nipple problems.

Unit IX. Clinical Skills for the Initiation and Management of Lactation (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. (cont.) Manage the initiation and continuation of BF	5. Treatment/care of: a) inverted or flat nipples b) nipple trauma c) engorgement d) plugged ducts, mastitis e) difficulties with the let-down reflex f) perceived low milk supply g) actual low milk supply (see Unit IX C.5)	Clinical observation and practice		Nurse specialists Lactation consultants Members of support groups Lactating mothers and infants	Demonstrate the correct care for two early problems commonly experienced by the BF mother. What is the most effective way to prevent engorgement? What is the most effective way to prevent sore or cracked nipples?
	6. The use of drugs and traditional medicine during lactation	Presentations by specialists		Pharmacologists Pharmacists Practitioners of traditional medicine	What drugs are completely prohibited during lactation? Why?

Unit IX. Clinical Skills for the Initiation and Management of Lactation (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. (Cont.) Manage the initiation and continuation of BF	7. Expression of breast milk <ul style="list-style-type: none"> a) methods <ul style="list-style-type: none"> • manual/hand • mechanical b) storage of milk c) use of stored milk 	Clinical observation and practice Laboratory practice	Sample pumps Guidelines on pumping, storing, and using breast milk	Approval for observation and practicum	Explain and demonstrate the appropriate technique for manual expression of breast- milk.
	8. Overview of other BF equipment and its appropriate uses <ul style="list-style-type: none"> a) nipple shields b) breast cups or shells c) breast pads/ liners d) BF supplementer devices 		Samples of equipment		Explain and demonstrate the appropriate use of nipple shields and breast cups.
C. Support the maintenance of BF	1. Nutrition of the mother and child <ul style="list-style-type: none"> a) taboos b) importance of colostrum 	(See Unit VI) Clinical practice			Observe and assess student's performance.

Unit IX. Clinical Skills for the Initiation and Management of Lactation (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
C. (cont.) Support the maintenance of BF	<ol style="list-style-type: none"> 1. (cont.) <ol style="list-style-type: none"> c) complementary feedings d) weaning 2. Typical newborn sleep/wake patterns 3. Significance and types of infant crying <ol style="list-style-type: none"> a) techniques to calm the baby 4. Elimination patterns of the newborn <ol style="list-style-type: none"> a) appearance and frequency of breast milk stools vs. formula stools b) diarrhea and its treatment c) frequency of wet diapers as an indication of adequate fluid intake 	<p>Observation and log of infant behavior and/or elimination patterns by students</p> <p>Log of infant behavior and elimination patterns by mothers for longer periods</p> <p>Analysis of logs</p>	<p>Child development specialists</p> <p>Graphic representations of patterns</p> <p>Observation guides</p> <p>Log sheets</p>	<p>Permission for observation</p> <p>Agreement of mothers to participate</p>	<p>Describe the differences in the stool of breast and bottle-fed infants. Explain why.</p>

Unit IX. Clinical Skills for the Initiation and Management of Lactation (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
C. (cont.) Support the maintenance of BF	5. Patterns of infant growth and weight gain in relation to the type of feeding they receive a) growth spurts and changes in feeding frequency b) slow weight gain and low milk supply	Analysis of case studies of BF and bottle-fed infants	Tables, graphs, diagrams Growth charts	Pediatricians	Develop a list of instructions to be given to the BF mother before she leaves the hospital concerning what she should expect in the first few weeks at home, and how to care for herself and her infant.

Unit X. Lactation Management: Mothers Who Work Outside the Home and Other Special Circumstances

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Assist mothers who work outside the home to maintain BF	<ol style="list-style-type: none"> 1. Technical aspects <ol style="list-style-type: none"> a) reverse rhythm BF b) how to pump and store breastmilk 2. Psychosocial aspects <ol style="list-style-type: none"> a) child care b) involvement and role of the father c) mothers support groups 3. Legal aspects <ol style="list-style-type: none"> a) legislative protection for the BF working mother 	<p>Lectures with specialists</p> <p>Discussions</p>		<p>BF mothers that work and permission for their participation</p> <p>Lawyers</p> <p>Fathers</p> <p>Representatives of support groups</p> <p>Employers</p>	<p>Develop a list of recommendations for the mother who works or is separated from her infant for long periods of time.</p>
B. Support and manage the maintenance of BF in special circumstances	<p><u>Child</u></p> <ol style="list-style-type: none"> 1. Multiple births 2. Premature/low birth weight 3. Jaundice 	<p>Lectures with specialists</p>	<p>Diagrams, drawings</p> <p>Models, dolls, mannequins</p>	<p>Gynecologists</p> <p>Neonatologists</p> <p>Lactation consultants</p>	<p>What is the best intervention for an infant with jaundice?</p>

52 Unit X. Lactation Management: Special Circumstances (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. (cont.) Support and manage the maintenance of BF in special circumstances	4. With common illnesses: a) vomiting, diarrhea/gastro-intestinal infections • stress the importance of continuing to BF b) respiratory infections c) colic 5. Hospitalized 6. With congenital defects a) cleft lip and palate b) Down's syndrome c) neuromuscular defects 7. Allergies 8. Slow growth 9. Other	Clinical observation and practice Review of research and readings Group discussion Analysis of case studies Laboratory practice	Observation guide Case studies guide Movies, videos Transparencies and overhead projector Slides and projector	Pediatricians BF mothers and children, including BF mothers who have had problems but overcame them, and permission for their participation Approval for observation and practice Surgeons Neurologists	What would be your advice to a mother whose infant has diarrhea? Why?

Unit X. Lactation Management: Special Circumstances (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. (cont.) Support and manage the maintenance of BF in special circumstances	<p><u>Mother</u></p> <ol style="list-style-type: none"> With acute infectious or non-infectious diseases Hospitalized Diabetes Tuberculosis Epilepsy AIDS Hyper and hypothyroidism Hepatitis Herpes Allergies After breast surgery/cancer Physically handicapped 	<p>Lectures Group discussions</p> <p>Testimonials</p>	Video and monitor	<p>Specialists in these areas</p> <p>Women who have experienced these problems</p>	<p>What illnesses/ circumstances involving the mother and/or child are contraindications to BF? Why?</p> <p>Should the mother with AIDS breastfeed her baby? Why?</p>

54 Unit X. Lactation Management: Special Circumstances (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. (cont.) Support and manage the maintenance of BF in special circumstances	13. Mentally handicapped a) mental retardation b) psychiatric problems			Psychologists	
C. Assist adolescent mothers to initiate and maintain appropriate BF practices	1. Technical aspects of BF (as in Unit IX) 2. Psychosocial aspects specific to young (perhaps unmarried) BF mothers	Testimonials Discussion Interviews with adolescent mothers	Interview guides	Adolescent mothers BF clinicians with experience with adolescent mothers Permission for interviews	Describe the unique problems that confront an adolescent mother in relation to BF and propose a plan to overcome them.

Unit XI. Communication and Teaching Skills for Health and Other Professionals

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Identify the teaching/learning needs of individuals and groups	1. Principles of communication	Lectures with specialists	Transparencies and overhead projector	Specialists in communication, education, curriculum development, and audiovisual materials	Describe the steps in the development of a teaching plan.
	2. Conceptual basis for teaching/learning of adults	Small group work	Slides and projectors		
		Group discussion		IBFAN	What are the characteristics of adult teaching/learning?
	3. Identification of student's characteristics	Workshops			
	4. Needs assessment				
B. Design teaching plans for use with mothers, professionals, and other groups	1. Planning the adult learning process a) behavioral objectives b) content c) teaching methodologies d) development and organization of materials and resources e) evaluation criteria	Observation and critique of education sessions	Sample formats used in developing teaching plans	Approval for observation and practice--appropriate physical surroundings	Design a teaching plan for: a) a group of maternity nurses b) mothers who have had cesareans c) nutritionists d) physicians
		Workshop on the design and implementation of an instructional plan for mothers or other groups	Videos Observation guidelines	Conference room	

Unit XI. Communication and Teaching Skills for Health and Other Professionals (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
C. Apply the appropriate theoretical and clinical teaching techniques to groups and individuals, utilizing a variety of methodologies	<ol style="list-style-type: none"> 1. Participatory and interactive teaching <ol style="list-style-type: none"> a) integration of theory and practice 2. Use of participatory learning methodologies and feedback 3. Group dynamics 	<p>Classroom practice of teaching</p> <p>Practicum on use of group dynamics</p>	Teaching plan	<p>Sites for practice and permission</p> <p>Training specialists</p> <p>Appropriate rooms for practicing group dynamics</p>	<p>Observation of student's practicing a teaching session.</p> <p>Observe students giving feedback to colleagues.</p>
D. Utilize appropriate resources for teaching	<ol style="list-style-type: none"> 1. Utilization of audio-visual (AV) and other materials <ol style="list-style-type: none"> a) principles b) techniques 	<p>Critique of examples of AV materials</p> <p>Workshop on the development of simple visual materials</p>	<p>Posterboard, paper, markers, paint, glue, magazines, etc. to make visual materials</p> <p>Examples of AV materials</p>	Procurement of AV materials	<p>What are the basic principles in the development of AV materials?</p> <p>Evaluate the following examples of AV materials.</p>

Unit XI. Communication and Teaching Skills for Health and Other Professionals (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
E. Carry out, evaluate and follow-up educational programs on BF	<ol style="list-style-type: none"> 1. Evaluation of knowledge, skills and attitudes 2. Evaluation methods 3. Type of evaluation <ol style="list-style-type: none"> a) diagnosis b) formative c) sumative d) quantitative e) qualitative 	<p>Workshop for the development of an evaluation instrument based on the teaching plan developed earlier</p> <p>Classroom practice of evaluation skills</p>	<p>Examples of evaluation instruments</p> <p>Evaluation guidelines</p>	<p>Evaluators</p> <p>Educators</p>	Develop an evaluation plan for a given teaching session.

Unit XII. Communication and Counseling Techniques for BF Education at the Family Level

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Counsel and educate mothers on appropriate BF practices	1. Principles of counseling	Lecture			Identify the do's and don'ts of counseling.
	2. Counseling techniques	Role play			Observation of role play and actual counseling session
B. Support the mother and her family concerning BF	1. Myths, beliefs, and experiences of the mother, her family and her community regarding BF	Participative methodologies	Discussion guides	Sociologists Social workers Health promoters Community workers La Leche League and IBFAN representatives	Given the following case: identify the community influences that most affected the decision to breastfeed.
		<ul style="list-style-type: none"> • work in small groups • games • role plays • sociodramas 	Flip charts		
	2. The influence of B.1 on the decision to BF			Permission from families for interviews	Analyze the influence of the community in the decision to BF at the family level.
	3. Interpersonal and supporting relationships and their impact on the decision to BF a) role of the father	Interviews with mothers and families	Interview guides	Conference room	
4. Active listening techniques to facilitate understanding of the mothers' concerns		Group discussion		Space for small group work	
		Review of research and readings			

Unit XII. Communication and Counseling Techniques for BF Education at the Family Level (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. (cont.) Support the mother and her family concerning BF	5. The elements of informed choice 6. Support for the mother who decides not to BF	Analysis of case studies Lectures with specialists	Informed choice forms		

Unit XIII. Interventions to Effect Change in Health-Care Service Delivery Systems

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Identify hospital practices that prevent an optimal level of BF	<ol style="list-style-type: none"> 1. Principles of administration of health services 2. Hospital routines that prevent optimal BF practices <ol style="list-style-type: none"> a) separation of mother and child b) use of supplementary formula, water, teas c) free samples of formula d) delay of first BF e) use of bottles, pacifiers f) use of sedatives/ analgesia during childbirth, especially cesarean sections g) lack of knowledge about BF among the professional staff; mistaken and/or inappropriate advice h) lack of support for the BF mother 	<p>Lectures with specialists</p> <p>Group discussion</p> <p>Review of research and readings</p> <p>Institutional observation</p> <p>Small group work</p>	<p>Handouts on principles of administration and the change process</p> <p>Movies, videos</p> <p>Observation guide</p>	<p>Health service personnel</p> <ul style="list-style-type: none"> - social workers - nutritionist - pediatricians - administrators - nurses - obstetricians - gynecologists - statisticians - anesthesiologists <p>Approval for observation</p>	Analyze the status of BF in the institution where you work, indicating the problems where you can effect change.

Unit XIII. Interventions to Effect Change in Health-Care Service Delivery Systems (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. Identify the areas where health professionals can make changes	1. The role of the health professional as change agent a) how to recognize their field of influence and effectiveness b) how to put changes into effect				
C. Develop an appropriate strategy to make these changes in their work situation	1. Changes in routines to optimize BF practice a) early BF--within first 30-60 minutes after birth b) rooming-in c) no supplementation of any kind d) no use of bottles, pacifiers e) BF education classes for mothers, fathers, other family members, and hospital personnel 2. Identify barriers and facilitators of change		WHO/UNICEF Statement		Design a plan of action for putting necessary changes into effect.

Unit XIII. Interventions to Effect Change in Health-Care Service Delivery Systems (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
D. Promote BF at the institutional level so as to create a favorable environment for BF	1. Advantages of a multidisciplinary team in promoting and supporting BF 2. The importance of a written BF policy that is understood, supported, and practiced by all personnel a) how to have input in the development of policies	Round table discussions	Copies of the BF policy of various institutions, if available	Pediatricians Obstetricians Nurses Nutritionists Psychologists Administrators Social workers	What is meant by "multidisciplinary team" in the promotion of BF? Why is it fundamental to the successful initiation and maintenance of BF? Analyze the BF policy of your hospital.

Unit XIV. Breastfeeding Promotion at the Community and Societal Levels

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Identify socio-cultural and economic obstacles to successful BF practices	1. Urbanization and break up of the family a) lack of family support b) lack of female role model for BF	Review of research and readings		Sociologists Community Workers	
	2. The economic situation and the increasing number of women working outside the home a) separation of mother and child b) lack of support in the work site c) lack of support from health professionals d) lack of paternal and family support	Group discussion Small group work Lectures with specialists	Statistical data Flipcharts Graphs, tables, diagrams	Sociologists Psychologists Economists Conference room Employers Fathers Other children	Identify and analyze two sociocultural obstacles to BF in your work situation and their impact on the optimal practice of BF.
	3. Image of the woman a) sexual b) maternal c) as a whole				

Unit XIV. Breastfeeding Promotion at the Community and Societal Levels (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. (cont.) Identify socio-cultural and economic obstacles to successful BF practices	4. Influence of mass media and commercial propaganda on BF practices a) accurate information b) false information c) strategies to promote BF	Evaluation of examples of messages being used Group discussion Small group work Sociodramas	Posters, videos, movies, ads that give examples of messages Transparencies, slides	Specialists in communication	What is the predominant message in the mass media regarding BF? What impact does this have?
	5. Promotion of the use of bottles and formula beginning in early childhood a) toys--dolls with sets of bottles b) bottles as baby gifts			Toy marketing specialists	
	6. Societal perceptions of BF a) instinctual rather than learned process b) sexuality c) prolonged duration not normal or natural d) it is primitive and backward			Sociologists	

Unit XIV. Breastfeeding Promotion at the Community and Societal Levels (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. (cont.) Identify socio-cultural and economic obstacles to successful BF practices	6. (cont.) e) decreases mother's independence, ties her to baby f) compromises maternal nutrition				
B. Identify socio-cultural and economic factors that facilitate and promote successful BF practices	<ol style="list-style-type: none"> 1. Renewed interest in protection of natural resources 2. Scientific validation of the value of BF 3. Need to decrease national debts and save foreign exchange 4. Increased interest and pride in traditional cultures and practices 5. Support of national and international organizations such as PAHO, WHO, and UNICEF for BF 	<p>Lectures</p> <p>Group discussion</p>		<p>Policy makers</p> <p>Representative of PAHO or UNICEF</p>	<p>In this country, what programs are being developed to support BF? Who is implementing them?</p>

Unit XIV. Breastfeeding Promotion at the Community and Societal Levels (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
B. (cont.) Identify socio-cultural and economic factors that facilitate and promote successful BF practices	6. National concern with increasing population 7. Labor laws that protect working BF mothers	Lecture	Legislation	Labor Lawyer	
C. Develop strategies appropriate to the actual situation in the community/ region/country for the promotion and support of BF	1. Strategies to promote BF a) needs assessment b) community education • women of child-bearing age • pregnant women • BF mothers • working mothers • spouses and families • community leaders • community health workers	Lecture	Materials from past and/or present BF promotion campaigns	Specialists in: - BF - communication - community organization - political action - education La Leche League IBFAN Members of support groups	Develop a plan of community education directed at community leaders.

Unit XIV. Breastfeeding Promotion at the Community and Societal Levels (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
C. (cont.) Develop strategies appropriate to the actual situation in the community/ region/country for the promotion and support of BF	1. b) (cont.) <ul style="list-style-type: none"> • health professionals • school age children and adolescents • the general public c) organization and formation of support groups <ul style="list-style-type: none"> • identification of mothers' needs and interests • identification of formal and informal community leaders • possible organizational structures and functions • general mothers clubs vs. lactating mother-to-lactating mother clubs (e.g., La Leche League) 	Practicum in the community Lecture		Founders and President of groups	Plan an educational session for adolescents What is the role of support groups in promoting BF?

Unit XIV. Breastfeeding Promotion at the Community and Societal Levels (Cont.)

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
C. (cont.) Develop strategies appropriate to the actual situation in the community/ region/country for the promotion and support of BF	1. (cont.) d) political action <ul style="list-style-type: none"> • labor laws • International Code of Breastmilk Substitutes • national policies • structure and accessibility of health services • action by organized groups <ul style="list-style-type: none"> - in health - unions - agrarian e) diffusion of messages via mass media <ul style="list-style-type: none"> • principles • effectiveness • limitations 	Workshop for development of messages and preparation of articles supporting and promoting BF for community newsletter, newspapers, bulletins Presentation of radio and TV interviews about BF		Lawyers Legislators Policy Makers Administrators Union Representatives Specialists in communication	Describe the labor laws that are necessary to protect BF. In your opinion, what would you add to the labor laws in this country to protect BF? If there are no laws, what are the most important problems that legislation should address in order to protect BF? Develop a radio spot directed towards spouses and families to promote BF.

Unit XV. Evaluation of Breastfeeding Promotion Activities

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
A. Develop and implement a basic plan to evaluate BF promotion activities	1. Concepts regarding follow-up and evaluation of interventions	Lectures with specialists Review of research and readings	Transparencies and overhead projector Slides and projector	Nursing faculty and service personnel	
B. Establish and maintain a record system that allows for the follow-up and evaluation of interventions	1. Collection and recording of client and BF data a) types of information b) instruments for gathering information c) uses of information 2. Evaluation a) types b) instruments c) uses	Exercises in the use of data collection forms	Examples of record systems, data collection and follow-up forms	Representatives of support and collaborating agencies in the community -- permission for their participation	Design a form to collect information about the use of supplementary feedings by BF mothers in the community who received BF classes in the hospital after giving birth. How would this information be useful and/or used?
C. Participate in BF research	1. Principles of research a) types b) uses c) methodologies and implementation d) limitations e) suggested areas of study	Small group work Review research reports	Examples of different types of research studies Research guidelines		Discuss two research methodologies. Review and discuss the results of research as presented in professional publications.

The Lactational Amenorrhea Method: Example of a Teaching Unit

**Miriam Labbok, Ronnie Lovich, Rosalia
Rodriguez-Garcia, and Lois A. Schaefer**

UNIT VIII. LACTATION AND BIRTH SPACING INTRODUCTION TO THE LACTATIONAL AMENORRHEA METHOD

- A. Breastfeeding and birth spacing
 - A.1. Impact of breastfeeding on population fertility
 - A.2. Physiology of lactational infertility
 - A.3. Lactational amenorrhea versus lactational menses

- B. The lactational amenorrhea method (LAM) of child spacing
 - B.1. Criteria for the use of LAM
 - B.2. Recommendations for the effective use of LAM for child spacing
 - B.3. Transition from LAM to a complementary method
 - B.4. Recommendations for patient counseling and education

- C. Breastfeeding and family planning: complementary methods
 - C.1. Methods of family planning for use during breastfeeding (advantages and disadvantages)

 - C.2. Additional points to discuss

Note: This teaching plan follows the outline of the breastfeeding module. Refer to Unit VIII, page 41.

INTRODUCTION

To the Teacher/Faculty:

The Lactational Amenorrhea Method (LAM) is recognized as an effective method of family planning for the fully lactating amenorrheic woman during the first 6 months postpartum. When properly used, it can provide 98% protection against an unplanned pregnancy. However, like other methods of child spacing, it must be used correctly. Effectiveness is dependent upon proper breastfeeding practices and whether or not menses has returned. One must keep in mind that it is a knowledge-based, user-intensive method and its success is therefore dependent upon good patient education and support. Every effort should be made to ensure a positive social and familial climate to enable a woman to choose to breastfeed optimally.

The purpose of this teaching plan is twofold: 1) to provide teachers/faculty with the background information needed to teach the Lactational Amenorrhea Method of child spacing; and 2) to provide an example of how the core curriculum can be used to develop specific teaching plans.

This teaching plan uses information from the "Guidelines for Breastfeeding in Family Planning and Child Survival Programs" developed by the Institute for International Studies in Natural Family Planning (Labbok, Koniz-Booher, Shelton, & Krasovec, 1990). Tables from the guidelines have been incorporated into this sample unit. The method itself is derived from earlier work on the development of a breastfeeding method (Labbok, 1983), the consensus reached by researchers in lactation and fertility at a meeting held in Bellagio, Italy, regarding breastfeeding and its effects on postpartum amenorrhea (Kennedy, Rivera, & McNeilly, 1989), and an interagency meeting on this topic held at the Institute for International Studies in Natural Family Planning, Georgetown University, February 1988.

Key Concepts

These concepts are utilized within the text (see definitions in Annex 1):

complementary family planning
exclusive breastfeeding
full breastfeeding
nearly full breastfeeding

amenorrhea
anovulation
ovulation
probability of
conception

OBJECTIVES

The student will be able to

- A. explain the impact of breastfeeding on birth spacing
- B. explain the Lactational Amenorrhea Method (LAM), including criteria for its use, the method's efficacy, instructions for its effective use, and timely introduction of complementary family planning
- C. describe the various family planning methods and their interaction with breastfeeding

CORE CONTENT

A. Breastfeeding and birth spacing

A.1. Impact of breastfeeding on population fertility

- A.1.a. Breastfeeding in the developing world is responsible for more spacing of pregnancies than all family planning methods combined (Kennedy et al. 1989; Thapa, Short, & Potts, 1989). In areas of the world with optimal breastfeeding practices ("optimal" to be defined further later in this text), it contributes to an average birth spacing of 2 years or more.

A.1.b. Decline in breastfeeding practices has been associated with earlier return of menses and increased fertility. On a broad level, a decline in breastfeeding can be associated with increased fertility rates. If there is a continuing decline in breastfeeding practices, significant increases in contraceptive prevalence will be required in order to maintain current fertility levels (Labbok & Koniz-Booher, 1989; McCann, Liskin, Piotrow, Rinehart, & Fox, 1984).

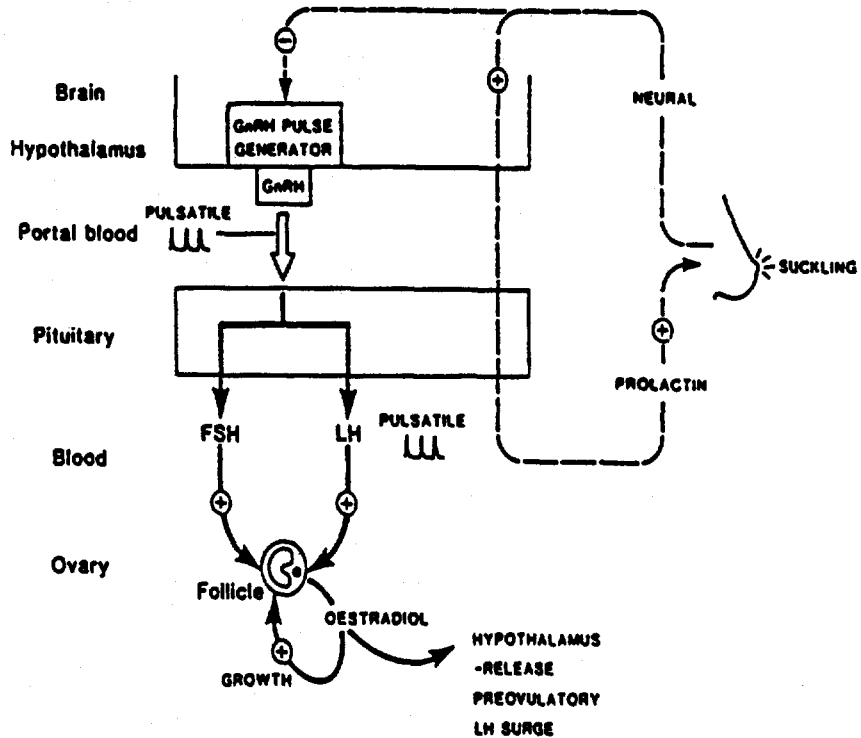
Increased durations of breastfeeding, especially full breastfeeding, could contribute to slower population expansion at current levels of family planning use and, concurrently, could contribute to decreased infant mortality rates (Kennedy et al. 1989; McCann et al. 1984; Thapa et al. 1988).

A.2. Physiology of lactational infertility

A.2.a. The effect of breastfeeding on fertility is mediated by a complex hypothalamic-pituitary-ovarian feedback mechanism. Breastfeeding regulation of both the menstrual cycle and milk production begins with suckling and its effect on the hypothalamus. The current understanding is that nipple stimulation causes changes in hypothalamic production of hormones. This in turn alters pituitary hormone production and, as a result, the ovary does not receive pulsatile stimulation for ovum development and release and, concurrently, milk production is stimulated (see Figure 1). [Review, if necessary, the physiology of milk production (Unit V) and of the menstrual cycle (Annex 2).

A.2.b. Immediately following delivery there is a rapid drop in levels of circulating placental hormones. In the nonlactating state, all systems return to their prepregnant functions, and ovulation resumes in an average of about 7 weeks (Gray et al. 1990). (See Figure 2.)

Figure 1.
Schematic diagram of hypothalamic control of gonadotropin secretion

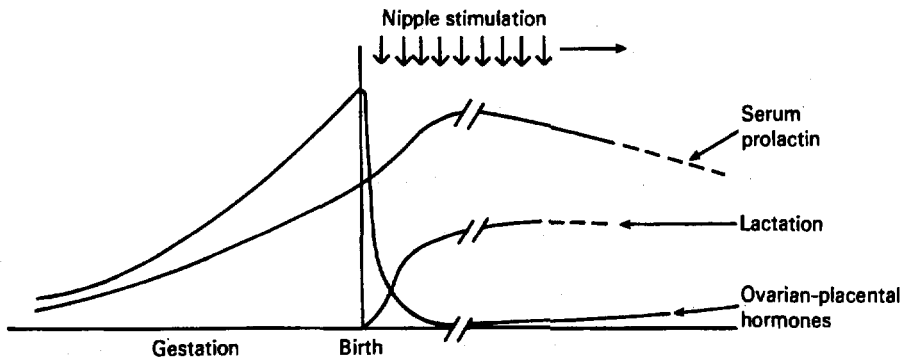
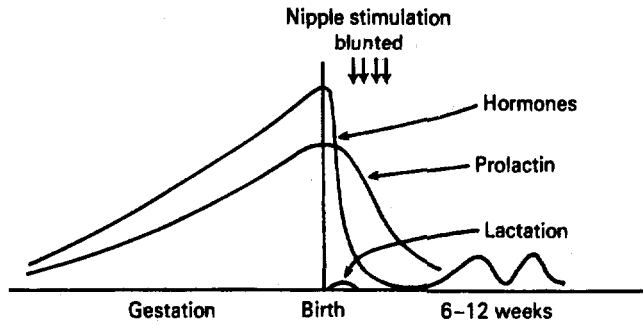


GnRH is released in pulses from the hypothalamic pulse generator and induces pulsatile LH release from the pituitary. It is thought that suckling either via a direct neural input and/or by increasing prolactin secretion alters the frequency of LH pulse secretion by affecting the hypothalamic GnRH pulse generator.

Source: McNeilly, A. S., Glasier, A., & Howie, P. G. (1985). Endocrine control of lactational infertility. I. In J. Dobbing (Ed.), Maternal nutrition and lactational infertility (pp. 1-24). New York: Raven Press.

- A.2.c. Suckling, however, suppresses the release of gonadotropin releasing hormone (GnRH) by the hypothalamus. The secretion patterns of the luteinizing hormone (LH) and follicle stimulating hormone (FSH) are dependent upon GnRH patterns. LH and FSH release patterns are therefore disrupted during suckling, and consequently, follicle development is irregular and estrogen is suppressed. Thus, during lactation there is disorganized follicle stimulation and limited estrogen production, and the release of a mature ovum may be prevented (see Figure 1).
- A.2.d. GnRH release may also be influenced by dopamine, beta-endorphins, and norepinephrine. The levels of these neurotransmitters seem to be affected by certain hormonal level changes and by suckling.
- A.2.e. Factors that cause decreased suckling and can lead to decreased milk production and the return of ovulation may include the use of pacifiers and bottles, introduction of other foods or liquids, long intervals between feedings, stress, and maternal or child illness.
- A.2.f. As time passes postpartum, or as other feedings are initiated or the feeding pattern is disrupted, prolactin secretion will diminish leading to decreased milk production. The release of GnRH will change, leading to organized stimulation of ovarian follicle development. Return of ovulation follows, but menses may occur at any time during this process. Figure 2 is a schematic representation of hormonal patterns with and without the nipple stimulation of breastfeeding.

Figure 2.
Schematic presentation of hormonal changes over time
with and without nipple stimulation



Source: Labbok, M. (1985). Consequences of breastfeeding for mother and child. *Journal of Biosocial Science*, 9(Suppl.), 43-54.

A.3. Lactational amenorrhea versus lactational menses

- A.3.a. During lactation, the probability of conception is much lower during amenorrhea than after menses has returned. (Amenorrhea alone is not an indicator of infertility, nor does one menstrual bleed mean that the nonlactational fertility level has returned.)
- A.3.b. *Within the first 6 months postpartum*, if a fully lactating woman begins to menstruate, it is probable that menses has not been preceded by ovulation. Even if there had been follicular development, pregnancy is unlikely, in that the occurrence of both a mature ovum and follicle with adequate luteal activity is rare. However, once menses has occurred, the next menstrual cycle is often ovulatory, and lactation would no longer be considered effective protection against pregnancy.

There is often continued spotting during the first 6-8 weeks postpartum (56 days). This is *not* considered to be menstrual flow if the woman is fully lactating.

- A.3.c. *After 6 months postpartum*, there is a greater chance that ovulation will occur before the first menstruation (Gray et al. 1990; Howie, McNeilly, Houston, Cook, & Boyle, 1982; Kennedy et al. 1989; Thapa et al. 1988). For this reason, it is important that even a fully lactating amenorrheic woman consider a complementary method of family planning around the infant's sixth month if she wants maximal protection from an unplanned pregnancy. *Complementary family planning methods* are defined as methods used to complement the fertility suppressive effect of lactation.

- A.3.d. If menses has recurred or if it is six months postpartum, significant reduction of pregnancy risk can continue if the mother continues to breastfeed optimally and frequently.

B. The Lactational Amenorrhea Method (LAM) of child spacing

B.1. Criteria for use of LAM

While breastfeeding for child spacing is not new "technology," there is now significant research to substantiate its use as an effective family planning method of limited duration, provided that certain rules are followed (Kennedy et al. 1989).

- B.1.a. For LAM to work, a woman must understand when she is protected, and when she may not be (see Table 1). She is 98% protected from pregnancy only when

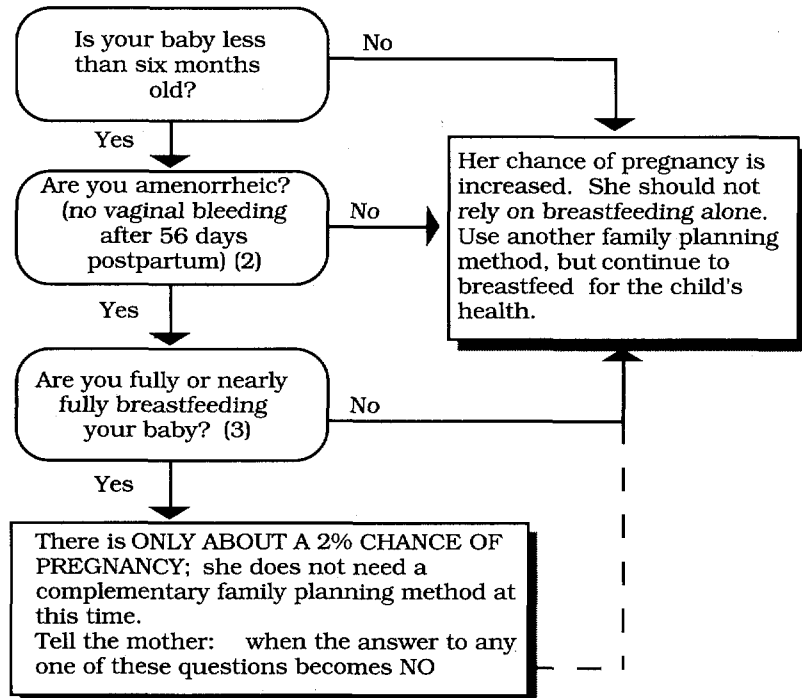
her baby is less than 6 months of age
and
her period has not returned
and
she is fully, or nearly fully,
breastfeeding.

- B.1.b. When any one of these conditions is no longer satisfied, the woman's chances of pregnancy are increased, and she will need an additional family planning method for maximal protection against an unplanned pregnancy (International Planned Parenthood Federation, 1990).

- B.1.c. Even when a woman satisfies these conditions, and especially when her baby is close to 6 months of age, she needs information on when and where to seek complementary family planning for maximal protection.

Table 1.
LAM Algorithm*

Ask the mother:



(1) It must be noted that these guidelines are conservative. Women who follow these guidelines after 6 months postpartum, or who have experienced only one vaginal bleed, may still have some decreased fertility if the recommended optimal breastfeeding behaviors are followed (see Table 1). Furthermore, in many areas of the world, women may breastfeed for 18-24 months and remain amenorrheic for 12 months or more. These women may remain infertile for 12-15 months postpartum.

(2) Spotting that occurs during the first 56 days is not considered to be menses.

(3) "Full" breastfeeding includes exclusive or almost exclusive breastfeeding (with occasional tastes of ritual foods or water), day and night, according to recommendations in Table 1. "Nearly full" breastfeeding means that occasional nonbreast foods are given.

Source: Lobbok, M., Koniz-Booher, P., Shelton, J., & Krasovec, K. (1990). Guidelines for breastfeeding in family planning and child survival programs. Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University.

*See page 183.

B.2. Recommendations for the effective use of LAM for child spacing

B.2.a. The success of LAM in delaying the return of fertility is dependent upon the pattern of breastfeeding. The infertility effects of lactation are closely linked with the following aspects of breastfeeding: intensity, duration, frequency, and time interval between breastfeedings, some of which may be influenced by the mother. (See Annex 1 for definitions and schema of breastfeeding patterns.)

B.2.b. Breastfeeding patterns that are most effective in preventing the early return of fertility are the same patterns that are optimal for infant nutrition and protection against illness. Table 2 lists 8 recommendations for optimal breastfeeding practices that will provide the mother with up to 98% protection.¹

B.2.c. The more frequently a woman breastfeeds each day (and the shorter the intervals between breastfeedings), the greater is her protection from fertility return. Frequency of breastfeeds multiplied by the average length of the feeds equals total duration of suckling per day, which is important in prolonging amenorrhea (McNeilly, Glasier, & Howie, 1985). This protection decreases with the addition of feedings that are not at the breast, and therefore, each of these feedings should be preceded by breastfeeding.

Additional points to emphasize:

B.2.d. If a woman is separated from her baby, it is important to express the milk at least as

¹Preliminary data from work done by Dr. Alfredo Perez, Department of Obstetrics and Gynecology, Pontificia Universidad Catolica de Chile, reflect only 1.2% pregnancies per 100 women years of method use under conditions of full breastfeeding [personal communication, May 1990].

Table 2.
Recommended breastfeeding behaviors for optimal child survival and child spacing

Begin breastfeeding as soon as possible after the child is born, preferably immediately after delivery. Colostrum, the early milk present in the breast during the first few days following birth, provides necessary nutrients and immunological protection for the infant and should be given to the infant. Early and frequent stimulation of the breasts aids in uterine contraction and also assures the establishment of an adequate milk supply, thus contributing to successful breastfeeding.

Breastfeed exclusively for the first 4 to 6 months. Do not give the infant other foods, liquids, or water before the age of 4 to 6 months. Full breastfeeding (exclusive, or almost exclusive which includes occasional tastes of ritual foods or water) or, nearly full breastfeeding (with occasional nonbreast feeds) are common patterns, but exclusive breastfeeding is the pattern that yields optimal health through babies' first 6 months.

After the first 4-6 months, when supplemental foods are introduced, breastfeeding should precede supplemental feedings. Breastfeed before offering other foods, if possible, so that the infant's hunger is satisfied first by breastmilk and secondly by other foods. This pattern will ensure that the nutrients contained in breastmilk are consumed by the infant and will encourage breastmilk production.

Continue to breastfeed for at least 2 years. Breastmilk remains an excellent source of both calories and protein for the older infant and toddler. Breastfeeding also continues to afford immunological protection, which is especially important once supplementary foods are introduced into the infant's diet. Frequent breastfeeding assures an adequate milk supply and, depending on the pattern of breastfeeding, may continue to have some child-spacing effect.

Breastfeed frequently, whenever the infant is hungry, both day and night. This pattern is sometimes called "on demand." This may be as often as every 1-2 hours (or more), especially in the early weeks. A rigid feeding schedule dictating lengths of time at the breast, or specific intervals, should not be followed, and long intervals (4-6 hours or more) between breastfeeds should be avoided. A placid infant may need to be encouraged to breastfeed more frequently. Frequent suckling stimulates milk production and has child-spacing effects.

Continue to breastfeed, even if the mother or the baby becomes ill. The nutrients and immunological protection afforded by breastfeeding are particularly important to the infant when the mother or the baby is ill. If the infant is suckling poorly, milk expression may be necessary to assure maintenance of breastmilk supply. If the mother is suspected to be human immunodeficiency virus (HIV) positive, she should continue to breastfeed. However, if the mother has any transmittable potentially lethal disease, the advice of local health workers should be sought for the most current recommendations.

Avoid using a bottle, pacifiers (dummies), or other artificial nipples. Use of artificial nipples may decrease an infant's ability and desire to suckle at the breast. When a baby is given food or liquids, a spoon or cup should be used to reduce the possible introduction of contaminants (due to improper hygiene or handling) and to reduce nipple confusion (especially during the early months).

Eat and drink sufficient quantities to satisfy the mother's hunger. No one special food or diet for the mother is required to provide an adequate quantity and quality of breastmilk. However, mothers' caloric needs are elevated while breastfeeding, and women should be encouraged to consume additional calorically dense foods or supplements. No foods are forbidden.

Source: Labbok, M., Koniz-Booher, P., Shelton, J., & Krasovec, K. (1990). Guidelines for breastfeeding in family planning and child survival programs. Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University.

frequently as if there had been feedings. This helps to delay the return of fertility as well as to sustain the milk supply.

- B.2.e. If the baby is sleeping through the night without breastfeeding, the interval between feedings may be too long and the method may not be effective.

B.3. Transition from LAM to a complementary method

- B.3.a. The Lactational Amenorrhea Method is no longer considered to be 98% effective when

- the baby reaches 6 months of age,
- the woman has menstrual bleeding, or
- the woman begins regular supplemental feedings (more than 20% of all feedings).

The woman may stop using the method at any time for other reasons, as well.

- B.3.b. When one of these events occurs, another family planning method is needed for effective protection against pregnancy. Introduction of a complementary family planning method is an essential part of LAM use. This should be planned for as part of LAM counseling. Advise the woman to anticipate these events and to schedule a family planning appointment or have a barrier method (i.e., condom) available when one of these events occurs.

- B.3.c. After 6 months postpartum, if the woman has no access to other child-spacing methods and wants to continue relying on breastfeeding for whatever pregnancy prevention it might provide, she should be advised to continue feeding on demand, both day and night, and to

offer the breast first at every supplemental feed. This is also extremely important for the maintenance of milk supply. The mother must understand that protection against pregnancy may be substantially decreased.

B.4. Recommendations for patient counseling and education

The Lactational Amenorrhea Method is a simple method of child spacing that can be easily understood by the mother. More complex information has been given here to provide a scientific background for the clinician. It is essential that the mother understand the 3 conditions for LAM use, the recommended breastfeeding behaviors that have been discussed, and the importance of timely complementary family planning. The goal of counseling a breastfeeding woman on child-spacing options is to give her the necessary information for choosing a method that will provide her the protection she desires, without negative effects on milk production or child health.

Checklist for counseling the mother about LAM:

1. how to practice optimal breastfeeding
 - begin immediately after delivery
 - feed on demand, day and night
 - feed at least every 4 hours, more frequently in early weeks
 - avoid nonbreastfeedings--feed only breastmilk for 4-6 months
 - express breastmilk if separated from baby

- breastfeed even if mother or baby is sick
 - avoid other nipples, pacifiers, and bottles
 - encourage the mother to eat and drink to satisfy her hunger and thirst
2. when to stop using LAM as the only method of family planning
 - infant reaches the age of 6 months
 - onset of postpartum menstruation
 - introduction of regular nonbreastfeeds
 3. when and where to obtain a complementary family planning method
- B.4.a. Special considerations in counseling (refer to Unit X): Women who work outside the home require special counseling regarding methods of collecting and storing breastmilk. Most importantly, a working mother needs support from her family and reassurance about her infant's good health (Rodriguez-Garcia, 1989).

C. Breastfeeding and family planning: complementary methods

- C.1 Methods of family planning for use during breastfeeding (advantages and disadvantages)
 - C.1.a. Review all family planning methods, including their mechanisms of action and efficacy.
 - C.1.b. Not all family planning methods are fully compatible with lactation. Nonhormonal methods are preferred during lactation and are listed as first-choice methods in Table 3.

Progestin-only methods are second-choice. Since hormonal methods containing estrogen can have secondary effects on milk production, combined methods (containing estrogen and progestin) are classified as third-choice. All methods are acceptable as long as the mother receives full information and makes an informed choice.

C.1.c. Complementary family planning methods should be initiated at about 6 months postpartum if the woman has been relying only on the Lactational Amenorrhea Method for family planning, or at any time the woman no longer meets any one of the criteria for LAM use. Those methods considered to be most acceptable for the breastfeeding mother are the first-choice methods in Table 3.

C.1.d. Review family planning methods and discuss the advantages and disadvantages of each in relation to breastfeeding (see Table 3).

C.2. Additional points to discuss

C.2.a. Bleeding associated with intrauterine device (IUD) insertion and "settling" (i.e., uterine contraction) should not be confused with return of menses.

C.2.b. Women who choose to rely on natural family planning should be advised to return for additional instruction about their fertility signs upon return of menses, as lactation often alters cervical secretions, making interpretation difficult (Perez, 1981, 1988).

C.2.c. If estrogen-containing hormonal methods are the only ones available to a woman, lactation should be well established prior to initiation of these methods and, preferably, the infant should be no longer dependent on breastfeeding for nutritional requirements.

Table 3: Family planning options for breastfeeding women**First Choice: Nonhormonal methods**

METHOD	ADVANTAGES	DISADVANTAGES	COMMENTS
CONDOMS	No effect on breastfeeding. Can be very effective if used correctly.	May be irritating to vagina and may require additional lubrication.	Offers some protection against sexually transmitted diseases. No risks to mother or child.
DIAPHRAGM	No effect on breastfeeding. Can be very effective if used correctly.	Diaphragm must be refitted postpartum after the uterus has returned to the prepregnancy size.	May not be widely available. Effectiveness depends on use with a spermicide.
SPERMICIDES	No effect on breastfeeding. Can be very effective if used correctly.	May be irritating to the genital area. May be irritating to male partner.	Small amounts may be absorbed into maternal blood and there may be some passage into milk; there is no known effect on the infant.
INTRAUTERINE DEVICES (Nonhormonal IUDs)	No effect of IUD itself, or of the copper in some IUDs, on breastfeeding. Very effective.	Possible risk of expulsion and uterine perforation if not properly placed or if insertion prior to 6 weeks postpartum.	Insertion may need to be delayed until after 6 weeks postpartum to reduce the possibility of expulsion and/or perforation of the uterus.
NATURAL FAMILY PLANNING (Periodic abstinence)	No effect on breastfeeding. Can be very effective if used correctly.	May require extended period of abstinence. May be difficult to interpret fertility signs during breastfeeding.	Additional training of method users may be necessary to accurately interpret signs of symptoms of fertility during breastfeeding. Calendar rhythm method cannot be used during amenorrhea. Temperature method alone has limited value prior to first ovulation.

Table 3: Family planning options for breastfeeding women (Cont.)

First Choice: Nonhormonal methods

METHOD	ADVANTAGES	DISADVANTAGES	COMMENTS
VASECTOMY (Male voluntary surgical sterilization)	No effect on breastfeeding. Nearly 100% effective.	Minor surgery with chance of side effects for father. It is irreversible.	A recommended method if no more children are desired. Counseling necessary for couples. No risk to mother or child.
TUBAL LIGATION (Female voluntary sterilization)	No direct effect on breastfeeding. Nearly 100% effective.	May involve short-term mother/infant separation. Anesthesia can pass into breastmilk and sedate the infant. Surgery, in general, has risks. It is irreversible.	A recommended method if no more children are desired. General anesthesia is not recommended. Counseling is necessary for couples.

Table 3: Family planning options for breastfeeding women (Cont.)**Second Choice: Progestin-only methods**

METHOD	ADVANTAGES	DISADVANTAGES	COMMENTS
PROGESTIN ONLY METHODS (Mini-pill, injectables, and implants*)	Can be very effective. May increase milk volume. Effectiveness during breastfeeding approaches that of combined pill.	Some hormone may pass into breastmilk.	There is no evidence of adverse effects on the infant from the very small amount of hormone that passes into the milk.

Third Choice: Methods containing estrogen

METHOD	ADVANTAGES	DISADVANTAGES	COMMENTS
COMBINED ORAL CONTRACEPTIVES (Estrogen and progestin*)	Very effective.	Estrogens may reduce milk supply. Some hormone may pass into breastmilk.	There is no evidence of a direct negative effect on infants, however, in some women, suppression of milk supply appears to lead to earlier cessation of breastfeeding. If these methods cannot be avoided, breastfeeding can and should continue, as it continues to offer nutritional benefits for the infant or toddler.

*Some injectables and implants may have estrogenic components. These should be considered "third choice" methods.

Source: Lobbok, M., Koniz-Booher, P., Shelton, J., & Krasovec, K. (1990). Guidelines for breastfeeding in family planning and child survival programs. Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University.

TEACHING METHODOLOGY

While a didactic presentation is appropriate for certain components of this unit such as the physiology of lactational infertility and rules for effective use of LAM, it is possible to identify participatory activities to complement the information given and assist the student's understanding of both technical and social aspects of LAM.

Some activities in this area include the following:

Small group discussion for values clarification, addressing such questions as

- How long should a baby be breastfed?
- How do you feel about the Lactational Amenorrhea Method?
- Do you believe it works?
- Would you recommend it to a patient? To a friend or relative?
- Would you rely on it if you were breastfeeding? Why or why not?
- Would you use other methods while breastfeeding? Why or why not?

This methodology could be used when beginning the unit to help focus the teaching, as well as at its conclusion, as a means of monitoring changes in student attitudes and knowledge.

Group discussion on the advantages and disadvantages of using the Lactational Amenorrhea Method

Possible answers are as follows:

Advantages

- Free
- Effective for up to 6 months
- Easy to use
- Health benefits for mother and child

Disadvantages

- Limited duration
- No protection against sexually transmitted disease
- Skepticism about the importance of breastfeeding for mother's and child's health

Advantages (cont.)

May be viewed as "natural" or "traditional"

Protection starts immediately after birth

Disadvantages (cont.)

May be viewed as "old wife's tale," too traditional

Skepticism about effectiveness

Other suggested exercises

- Interview a traditional birth attendant (TBA) or midwife on attitudes and practices in the use of breastfeeding as a child-spacing method.
- Interview a physician or a nurse. What do they believe about LAM? What advice do they give lactating women? How do their attitudes and practices differ from those of a TBA?
- Informally, survey lactating women on frequency and duration of breastfeeding and return of menses.
- Interview women about their beliefs regarding breastfeeding and infertility. Explore their breastfeeding habits, return of menses, and subsequent pregnancies. Discuss responses in class.
- Discuss, with family planning providers, specific method recommendations for lactating women.
- Have students present different methods of family planning, including their advantages and disadvantages for breastfeeding.
- Present the case of a woman who wishes to use only combined oral contraceptives. Discuss the pros and cons of such use.
- Review other case studies.

AUDIOVISUAL AND PRINTED MATERIALS

These might include slides, overhead transparencies, posters, or handouts of the following:

Table 1: Use of Lactational Amenorrhea Method (LAM) for child spacing during the first 6 months postpartum

Table 2: Recommended breastfeeding behaviors for optimal child survival and child spacing

Table 3: Family planning options for breastfeeding women

Annex 1: Definitions of breastfeeding

Annex 2: The menstrual cycle

diagram of physiology of lactational infertility

diagrams, pictures of anatomy of breast, endocrine changes of pregnancy

case studies

examples of and a textbook on family planning methods

Other resources might include health-care providers knowledgeable in the use of LAM, traditional birth attendants, family planning service providers, lactating women, women of reproductive age, mothers with a variety of experiences, obstetricians, gynecologists, nutritionists, educators, and leaders of support groups.

EVALUATION

This information reflects some of the main concepts in the material presented here. The following are recommended as questions to ask upon conclusion of the didactic portion of this unit. They can be used for written or verbal methods of evaluation.

- Briefly describe the physiology of lactation as it relates to fertility.
- What are the 3 criteria for appropriate use of the Lactational Amenorrhea Method?
- What breastfeeding behaviors are important for the effectiveness of LAM as a child-spacing method? Why?
- What methods of family planning are considered "complementary" to lactation? Which methods are considered to be of second and third choice? Why? When should a complementary method be started?

Annex 1: Definitions of breastfeeding

Breastfeeding is defined as the nursing of an infant at the mother's breast (Dorland's Pocket Medical Dictionary, 1977). It has also been defined as the process by which a mother nourishes her infant with breast milk (Rodriguez-Garcia et al. 1988). Herein we use a broader definition including both the mother and the infant as potential breastfeeders.

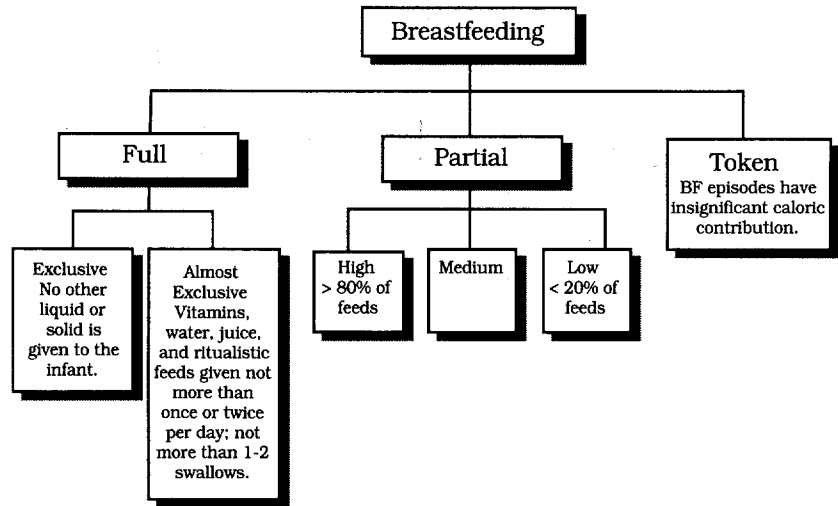
"*Full*" *breastfeeding* includes exclusive and nearly exclusive breastfeeding, meaning no regular supplements of any sort are given.

"*Exclusive*" *breastfeeding* means that no other foods or liquids are given.

"*Nearly exclusive*" *breastfeeding* means that not more than 1-2 swallows per day of vitamins, water, juice, or other foods or liquids are given.

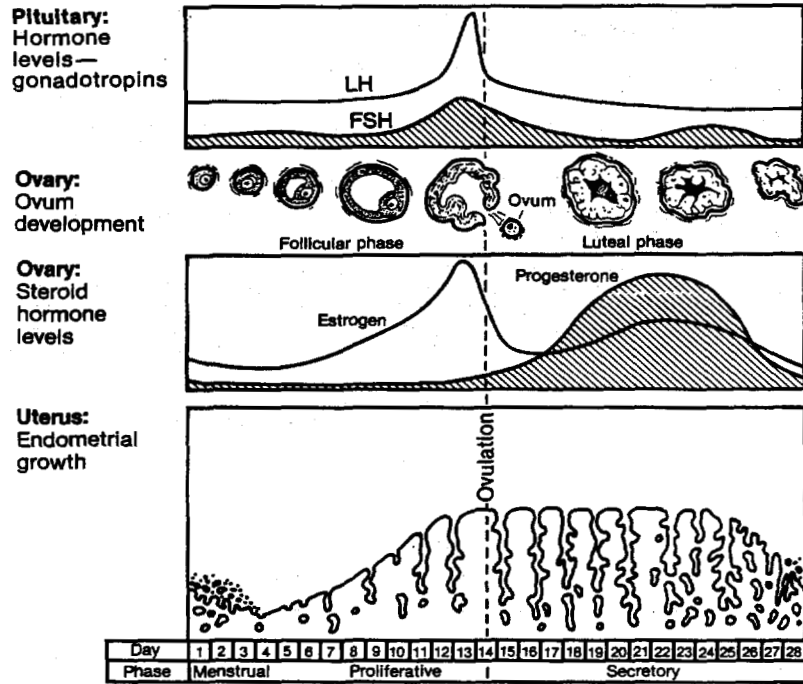
"*Nearly full*" *breastfeeding* includes some aspects of the partial breastfeeding pattern. (See schema below.) It may include some feedings other than breastfeeds. But remember that only when more than 80% of feedings are by breast is lactational amenorrhea still considered protective against pregnancy. The higher the percentage of feeds that are breastfeeds, the better it is for the nutrition of the infant, as well as for LAM effectiveness.

Refer to the schema below for a summary of the definitions of breastfeeding patterns. These are important when advising a patient on the appropriate and effective use of LAM.



Source: Adapted from Labbok, M. H., & Krasovec, K. (1990). Towards consistency in breastfeeding definitions. *Studies in Family Planning*, 21 (4), 226-230.

Annex 2: The menstrual cycle



Source: Rodriguez-Garcia, R., Kass-Annese, B., Stevenson, W., Klaus, H., & Spieler, J. (1988). Glossary of natural family planning terms. Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University.

REFERENCES

Dorland's Pocket Medical Dictionary. (1977). Philadelphia, PA: W.B. Saunders Company.

Gray, R. H., Campbell, O. M., Apelo, R., Eslami, S., Zacur, H., Ramos, R., Gehret, J. C., & Labbok, M. H. (1990). Risk of ovulation during lactation. Lancet, *335*, 5-29.

Howie, P. G., McNeilly, A. S., Houston, M. J., Cook A., & Boyle, H. (1982). Fertility after childbirth: post-partum ovulation and menstruation in bottle and breastfeeding mothers. Clinical Endocrinology, *17*, 323-332.

International Planned Parenthood Federation. (1990). New IPPF statement on breastfeeding, fertility and postpartum contraception. IPPF Medical Bulletin, *24*(2), 2-4.

Kennedy, K. I., Rivera, R., & McNeilly, A. S. (1989). Consensus statement on the use of breastfeeding as a family planning method. Contraception, *39*(5), 477-496.

Labbok, M. H. (1983). Breastfeeding and contraception (Letter to the editor). New England Journal of Medicine, *308*(1), 61.

Labbok, M. H. (1985). Consequences of breastfeeding for mother and child. Journal of Biosocial Science, *9*(Suppl.), 43-54.

Labbok, M. H., & Koniz-Booher, P. (Eds.). (1990). Breastfeeding: Protecting a natural resource. Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University/IMPACT.

Labbok, M., Koniz-Booher, P., Shelton, J., & Krasovec, K. (1990). Guidelines for breastfeeding in family planning and child survival programs. Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University.

Labbok, M., & Krasovec, K. (1990). Towards consistency in breastfeeding definitions. Studies in Family Planning, 21(4), 226-230.

McCann, M. F., Liskin, L. S., Piotrow, P. T., Rinehart, W., & Fox, G. (1981, revised 1984). Breastfeeding fertility and family planning. Population Reports (Series J, No. 24). Baltimore: Population Information Program.

McNeilly, A. S., Glasier, A., & Howie, P. G. (1985). Endocrine control of lactational infertility I. In J. Dobbing (Ed.), Maternal nutrition and lactational infertility (pp. 1-24). New York: Raven Press.

Perez, A. (1981). Natural family planning: postpartum period. International Journal of Fertility, 26(3), 219-221.

Perez, A., Labbok, M., Barker, D., & Gray, R. (1988). Use effectiveness of the ovulation method initiated during postpartum breastfeeding. Contraception, 38(5), 499-508.

Rodriguez-Garcia, R. (1989). Helping the working woman. In N. Baumslag (Ed.), Breastfeeding: The passport to life (pp. 86-88). New York: UNICEF.

Rodriguez-Garcia, R., Kass-Annese, B., Stevenson, W., Klaus, H., & Spieler, J. (1988). Glossary of natural family planning terms. Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University.

Thapa, S., Short, R. V., & Potts, M. (1988). Breast feeding, birth spacing and their effects on child survival. Nature, 335, 679-682.

PART II

MODULE IMPLEMENTATION



Guidelines for Implementing the Module

Rosalia Rodriguez-Garcia, Maria Teresa de Vergara, and Lois A. Schaefer

The following form has been developed as a tool to be used by health-care professionals and faculty to monitor the planning and implementation of the module. The primary purposes of these guidelines are to

- identify those aspects of the academic or clinical situation that intervene in the implementation of the module, and
- identify the achievements, facilitating factors, and obstacles that play a role in the implementation process, and how the obstacles have been overcome.

I. General information

1. Name of institution

2. Name of director or dean

3. Name of the person in charge of the maternal-child health (MCH) program or services

4. Type of institution

Private: _____

Public: _____

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5. In what month does the academic year begin?

6. How long is the academic year? _____

7. How many times is in-service training organized per year? _____

8. How long is in-service training? _____

II. Academic information

1. Length of nursing program

3 years _____ 4 years _____

2. Within the curriculum, is there a course that deals specifically with maternal-child health (MCH)?

Yes _____ No _____

3. Prior to using the lactation module, the nursing/medical/other curricula had specific objectives and content for the teaching of breastfeeding that were

sufficient _____ insufficient _____

4. The use of the lactation module has produced changes in the following areas of breastfeeding teaching:

1. Emphasis of breastfeeding focus _____

2. Objectives _____

3. Content _____

4. Skills taught _____
5. Attitudes taught _____
6. Number of hours _____
7. Teaching methodologies _____
8. Didactic materials used _____
9. Clinical activities _____
10. Evaluation criteria _____
11. Other (Specify)

III. Information on the integration of the breastfeeding module

1. The module has permitted the following activities to be accomplished:
 - a. changes in the teaching/learning process in the undergraduate program _____
 - b. changes in the teaching/learning process in the graduate program _____
 - c. organization of continuing education sessions/courses _____
 - d. changes in the organization and practices of hospital nursing services _____

e. collaboration of faculty and service personnel _____

f. interdisciplinary activities with
- physicians _____
- nutritionists _____
- others (specify) _____

g. informal education activities with mothers and/or community groups _____

h. educational sessions with faculty and/or service personnel _____

i. development of research projects
(topic: _____)

2. Of the units that constitute the module, to what extent has each been integrated into the curriculum?

C=Completely P=Partially N=Not at all

a. History of Breastfeeding Practices C P N

b. Sociocultural, Technological, and Political Factors That Influence Breastfeeding Practices C P N

c. Current Status of Maternal and Child Health (MCH) in the Country and Risk Factors for MCH C P N

d.	Biological and Psychosocial Aspects of Breastfeeding	C	P	N
e.	Anatomy of the Breast and the Physiology of Lactation	C	P	N
f.	Nutrition of the Mother and Child During Lactation	C	P	N
g.	Lactation and Sexuality	C	P	N
h.	Lactation and Birth Spacing: The Lactational Amenorrhea and Other Methods	C	P	N
i.	Clinical Skills for the Initiation and Management of Lactation	C	P	N
j.	Lactation Management: Mothers Who Work Outside the Home and Other Special Circumstances	C	P	N
k.	Communication and Teaching Skills for Health and Other Professionals	C	P	N
l.	Communication and Counseling Techniques for Breastfeeding Education at the Family Level	C	P	N
m.	Interventions to Effect Change in Health-Care Service Delivery Systems	C	P	N
n.	Breastfeeding Promotion at the Community and Societal Levels	C	P	N
o.	Evaluation of Breastfeeding Promotion Activities	C	P	N

IV. The process of integrating the module: achievements, facilitating factors, and difficulties

Steps	Achievements	Facilitating factors	Difficulties
1. Presentation of the module to the academic heads of the institution for their information, motivation, and decision making.			
2. Study of the module by the curriculum or program committee, or the MCH department, to identify the academic implications of the module's implementation.			
3. Information, motivation, and/or training in the philosophy and structure of the module for other faculty members and educators.			
4. Integration of the module or portions of the module into one or more programs or areas of study in the curriculum.			
5. Selection, information, and motivation of the other professionals (anthropologists, sociologists, physicians, nutritionists, psychologists, and others) who will collaborate in the development of module content regarding the philosophy and structure of the complete module to ensure that its cohesiveness will be maintained.			
6. Identification and selection of a bibliography appropriate to the needs of the module.			

IV. The process of integrating the module: achievements, facilitating factors, and difficulties (Cont.)

Steps	Achievements	Facilitating factors	Difficulties
7. Selection and development of collaborative ties with the sites for hospital and community practice.			
8. Coordination with the service personnel involved in the clinical activities, including information, motivation, and training.			
9. Promotion of interdisciplinary activities in the service areas.			
10. Identification and/or development of teaching materials appropriate to the needs of the module.			
11. Review, selection, and/or elaboration of the didactic materials that are needed for each unit.			
12. Development of observation/interview guides and/or checklists for the clinical activities in the module.			
13. Development of questions/criteria that allow the objective evaluation of the level of learning achieved at the end of each unit.			

IV. The process of integrating the module: achievements, facilitating factors, and difficulties (Cont.)

Steps	Achievements	Facilitating factors	Difficulties
14. Review of nursing research literature and of breastfeeding research in other disciplines that document module content.			
15. Summary of the conclusions reached in the small group work included in the module's teaching methodologies.			
16. Identification of and coordination with institutions that promote breastfeeding (La Leche League, IBFAN, others).			
17. Development of educational materials for use in the community.			
18. Identification of topics for research.			

COMMENTS:

SIGNATURE

DATE

Practical Tips for Curricular Change

Judith Melson

The documents prepared during the Pan American Breastfeeding Seminar for Nursing Faculty are the work of a group of highly committed nursing leaders from Latin America. They represent a significant contribution to maternal-infant nursing throughout the world and to breastfeeding education for all health workers.

The module developed during the seminar can be used for 1) nursing and midwifery students; 2) continuing education for nursing faculty; 3) in-service education for service providers (nurses, midwives, home health workers, physicians, social workers, nutritionists, and dietitians, public health workers, etc.); and 4) with adaptations, for students in other disciplines.

INTRODUCING NEW MATERIAL INTO CURRICULA

Few individuals are ever greeted with total enthusiasm when they recommend change of any kind--especially a change in the curriculum. It is possible to anticipate certain challenges when preparing to introduce new curricular materials. This paper will briefly address some issues that are relevant to this process. They can facilitate or hinder the successful integration of new materials, and therefore, are worthy of consideration.

THE "NEED TO KNOW" VERSUS THE "NICE TO KNOW"

One of the most difficult processes in curriculum development is deciding what must be included and what is not essential: what we call the "need to know" material versus the "nice to know" material. Some faculty will find that they can use the entire module as it stands, and others will have to do significant editing and selecting of essential material. One way to start in this task is to look at what the student is expected to accomplish. It may be beneficial to select the material by levels: the first level being that which will be essential for all nursing students; a second level being for those students with special interests in

breastfeeding; and a higher level yet being for graduate students in maternal and child health.

POSITION OF MATERIALS IN THE CURRICULUM

Each teacher will have to decide where the information fits best in his or her curriculum. It may be possible to include some of the material on breastfeeding in a general course on public health issues and include the clinical material and clinical emphasis in more specific maternity nursing courses.

A module can either form the content for an entire course or be a part of the material for a larger content area. It may be that certain units of the module will be used for all students and other units used for supplemental learning material. Thus, while all students will complete a selected subset of objectives, those students that show a particular interest in breastfeeding may complete the entire set of objectives of the module.

Most undergraduate nursing curricula are tightly packed with the information and experience that the faculty believe essential to teaching excellence in nursing. However, as health priorities shift, new information is added and other, less essential information is deleted. The key to determining the appropriate emphasis due a topic lies in the importance that is given to certain health issues in a country.

Educating and preparing students for a profession requires that currently practicing professionals agree on what is essential to know to enter that field. For example, in developing our curriculum for nurse-midwifery students at Georgetown University, we examined each objective and asked ourselves, "Do we agree that this is an essential component?" Thus we were able to decrease the amount of material that the students had to learn without compromising the quality. Listing the essential end behaviors that are related to breastfeeding and are required for different levels of students will be helpful in deciding what to include in the curriculum.

It would be advantageous to develop pre-test and post-test measures so that what has been accomplished with the curriculum can be documented. This evaluation research piece would increase the possibilities of obtaining funding for breastfeeding education activities.

GRADUATE CURRICULA

Graduate students often have a variety of experiences in postpartum and mother-infant nursing. The use of self-contained learning modules is especially helpful at this level because it allows the student to spend less time on the information that she/he already knows well and devote more time for in-depth study of less familiar material. Independent study, with a module as a guide, can be accomplished outside the classroom. Clear, detailed clinical objectives also allow the experienced student the opportunity for self-testing, selecting appropriate clinical experiences, and demonstrating mastery of the clinical objectives.

EFFECTING CHANGE

To recognize what needs to be changed, look for all and any obstacles to the promotion of breastfeeding. Change may be needed within the school, within the agency/hospital/health department, within the city, or nationwide. In-service education is an important area to be stressed when trying to effect change in a clinical setting.

Recommended activities and areas to be considered in bringing about changes in attitudes and practices relating to breastfeeding are

1. The establishment of multidisciplinary teams is vital to making changes in the breastfeeding practices and approaches of health professionals because so many different types of workers may interact with mothers. Including lay people in these activities is important.
2. A strong case must be made for the importance of breastfeeding. To establish breastfeeding as a significant

health issue, it is necessary to emphasize the connection between breastfeeding, child spacing, and maternal and infant mortality and morbidity.

3. If possible, include statistics from the country and region where the work is being done because these figures often mean more to local government and health officials than international statistics.
4. Distribute the material prepared at this seminar to faculty and health professionals as a way to stimulate discussion and begin the process of change.
5. Identify allies for promoting breastfeeding among government officials, ministries of health, and staff of public and professional organizations, as well as in local institutions.
6. Form interest groups made up of professionals, lay workers and interested students, as appropriate.
7. One promotional technique that is frequently used is the "Awareness Week." To do this, obtain a proclamation from the ministers of health or other government officials creating "National Breastfeeding Awareness Week." Obtain time spots on television and radio and present the public health aspects of breastfeeding. Involving students in these activities raises their public health consciousness and teaches them about educating the public.
8. Above all, continue to share everything you do.

PART III
SUPPORT MATERIALS



PART III

A. BACKGROUND

The Surge of New Interest in Breastfeeding. Why Now?

James Shelton

Although the history of breastfeeding is as long as the history of mankind, recent discoveries in this area, coupled with current worldwide trends in breastfeeding, have sparked a renewed interest in this age-old practice. A more thorough understanding of the reasons for this current surge of interest in breastfeeding can be gained by examining four key areas:

- new scientific evidence confirming and elaborating on the acknowledged benefits of breastfeeding,
- new evidence that breastfeeding can be promoted successfully within various populations,
- past successes promoting other child survival interventions, and
- establishment of international donor collaboration systems.

THE BENEFITS OF BREASTFEEDING

Scientists have documented the benefits of breastfeeding for centuries, but recent advances in research and technology have promoted even greater understanding of the unique and invaluable properties of breastmilk and the multidimensional benefits breastfeeding offers both mother and child. A comprehensive list of the benefits of breastmilk and breastfeeding would be too extensive to include here, but research in 3 areas provides a major impetus for the current resurgence of interest in breastfeeding.

First, new mortality data suggests an even stronger link between breastfeeding and infant survival than previously believed. For example, a 1989 study conducted in Brazil revealed that an exclusively breastfed infant is

- 14.2 times less likely to die from diarrhea,
- 3.6 times less likely to die from respiratory infection, and
- 2.5 times less likely to die from other infections

than a nonbreastfed infant (Victora et al. 1987). Additionally, studies conducted in the Philippines, India, Malaysia, Egypt, and Chile show that the risk of death from all diseases for non-breastfed infants is nearly twice that of breastfed infants (United States Agency for International Development, 1990).

Second, breastmilk proves to be much more of a “magic elixir,” with properties far beyond its nutritional value, than it has been given credit for in the past. For example, scientists now know that breastmilk has over 100 constituent parts including a number with direct immunological anti-infective properties. A recent study from Scotland demonstrated a major protective effect of breastfeeding against gastrointestinal illness and acute respiratory infection (ARI) even in a developed country (Howie et al. 1990). Breastmilk has the ability to adapt, over time, to match an infant’s changing needs. To date, no infant formulas exactly replicate breastmilk and no one expects anyone to be able to produce such a substance any time soon.

Finally, recent research has more precisely defined the contraceptive effect of breastfeeding. Previously, although scientists and health professionals clearly recognized a link between breastfeeding and a delay in conception, the actual relationship was not well understood. It is now known that when a woman is fully or nearly fully breastfeeding, amenorrheic, and less than 6 months postpartum, the woman receives about 98 percent protection against an unplanned pregnancy. Also, recent analyses of the World Fertility Surveys have indicated that for each additional month in the average duration of breastfeeding within a given population, the average birth interval increases between .25 and .5 months. Studies have shown that longer intervals between births (approaching 3 years or more) contribute to the health of mothers and their infants. In many instances, nations’ overall economic and population goals also are well-served by steps taken to attain adequate child spacing (Labbok & Koniz-Booher, 1990).

BREASTFEEDING PROMOTION

A renewed interest in breastfeeding also can be credited, in part, to recent successes in breastfeeding promotion efforts conducted in both developed and developing countries. Many of these efforts were initiated only after researchers began to document declines in the incidence and duration of breastfeeding in specific populations throughout the world.

Health professionals in many countries have instituted various breastfeeding education and promotion projects that have proven successful in reversing these trends. Projects conducted in Honduras, Panama, Brazil, Indonesia, and Thailand illustrate that breastfeeding promotion can lead to increases in the incidence and duration of breastfeeding (Huffman & Combest, 1988).

Because the program conducted in Honduras is the best documented among the programs mentioned above, closer scrutiny of that program is possible. This program, known as PROALMA (Proyecto de Apoyo a la Lactancia Materna), began in September 1982 and was based in 3 major hospitals serving urban populations. During the program, PROALMA staff conducted training for hospital staff, established milk banks within the hospitals, developed and distributed educational materials for health professionals and the public, and worked with government officials and hospital administrators to establish policies that support breastfeeding. Although the percentage of infants whose mothers initiated breastfeeding was similar before and after the program (95% and 96%), the average duration of breastfeeding increased significantly (from 5 months to longer than a year). In addition, over 70% of infants were still being breastfed at 12 months postpartum in 1985 compared to only 35% in 1982 (Mothers and Children, 1987).

Many breastfeeding promotion programs include a communications component. The communications portion of the program can be very effective in creating the supportive environment necessary for change in breastfeeding behaviors to take place. It provides information, support, and advice not only to nursing mothers, but also to their husbands and families, women of all ages, the general public, policy makers, government officials, and other influentials who can make changes in policy

and practices to promote breastfeeding. Interpersonal interventions also are strengthened by mass media efforts.

The major success story in the use of mass media is Brazil, where it was an important component of the national breastfeeding promotion program. Initially, the mass media program was a broadcast-oriented campaign. Later the campaign was supplemented by print coverage and wide-circulation, high-profile activities by policy makers, enactment of a national code of marketing for breastmilk substitutes, and the employment of a professional communications specialist. In Sao Paulo, surveys done in 1981 and 1987 showed an increase of breastfeeding at 3 months from 37% to 53% (Marin & de Oliveira, 1988).

A review of programs in 25 countries revealed that most successful mass media campaigns had 5 elements in common. First, they all had a plan for ensuring long-term sustainability of the breastfeeding promotion programs. Second, all had sound administration and financial management, not only of the general breastfeeding promotion program but of the mass media component in particular. Third, they had an overall communications strategy based on an in-depth analysis of the main impediments to optimal breastfeeding. Additionally, interpersonal support systems, such as health workers and counselors, were in place. Finally, a well-designed mass media program with messages and materials appropriate to the target audience(s) was developed (Green, 1988).

Interpersonal interventions themselves are important components of breastfeeding promotion programs. These activities are intended to inform and support new mothers and pregnant women and include education and training of health workers, changes in hospital and maternity service practices, and mothers' support groups. This last intervention is of particular interest and has proven to be highly effective in helping mothers to both initiate and continue breastfeeding. Depending on local needs and interests, support groups may work closely with the health-care sector, facilitating the liaison between mothers and providers; they may function independently; or they may combine these, and other, strategies. Their structure is highly variable as well. They range from being small, informal, local groups to being part of an international network, such as La Leche League International. In all cases, however, they provide mothers with

the practical information and moral support necessary to have a successful breastfeeding experience.

OTHER CHILD SURVIVAL INTERVENTIONS

A third reason that health-care and other professionals are taking a new look at breastfeeding and programs to promote breastfeeding, is the recent success of other worldwide campaigns designed to promote infant survival and healthy growth. For example, since the mid-1980s, international agencies have enjoyed considerable success promoting oral rehydration therapy (ORT) and immunization. Strategies proven to be effective in these promotional activities could be employed for the promotion of breastfeeding as well. In addition, the obvious natural linkages between ORT and breastfeeding, and immunization and breastfeeding, could be exploited. In ORT programs, breastfeeding could be encouraged as a preventive measure for diarrhea, during the diarrheal episode as part of the treatment, and afterwards to prevent recurrences. Immunization programs, with their continuing pre- and postpartum contact with mothers, provide a unique opportunity for promoting breastfeeding also. The promotion of breastfeeding should be an integral element within any comprehensive program aimed at promoting child survival and attaining optimal health, population, and nutrition goals. Many public health officials are optimistic that breastfeeding promotion programs will enjoy considerable success.

INTERNATIONAL DONOR AGENCY COLLABORATION

Despite the successful promotion activities of the past decade, the practice of breastfeeding has continued to decline. This has been due, in part, to the limited resources and programming being directed towards breastfeeding by the major donor agencies. Until recently, breastfeeding promotion was primarily composed of numerous small activities with little financial support, usually conducted by private voluntary organizations. One of the principal reasons for this is the diffuse nature of breastfeeding; it is found everywhere and included within many other areas of intervention, such as prenatal care, nutrition, growth monitoring, and child survival. As a result, all too often breastfeeding falls between the cracks and is not given the level of attention it deserves. It may be viewed as an area more suited to someone

else's intervention, or it may be seen as only a part of a larger program and, therefore, does not merit attention in its own right. At the same time, however, the critical contribution that breastfeeding makes to so many components of maternal and child health requires that organizations of all types, all over the world, but particularly the major donor agencies, begin to work together to actively promote, support, and protect breastfeeding.

An example of just such a collaborative effort by donor agencies is the Interagency Group of Action on Breastfeeding (IGAB), whose members include UNICEF, WHO, USAID, and the Swedish International Development Agency. The group is active in 5 areas that comprise the major influences on breastfeeding: information, education, and communications; health-care practices; food and nutrition policy; direct-to-mother support; and social support for mothers employed outside the home. Particular attention is given to reaching high-level policy makers to impress upon them the importance of breastfeeding and its impact on their overall goals, and to assist them in formulating policies supportive of breastfeeding.

Through collaborative and coordinated efforts, the donor agencies will be able to give breastfeeding sufficient identity and critical mass to generate the interest and expertise necessary to improve its practice. Donor agency officials all over the world are recognizing the profound benefits of breastfeeding and their common interest in its promotion. These types of collaborative efforts will give breastfeeding the prominence it deserves in relation to the global health situation and improve the impact and sustainability of breastfeeding promotional efforts.

REFERENCES

American Public Health Association. (1987). Breastfeeding promotion in Honduras. The PROALMA project. Mothers and Children, 6(1), 1-4.

Green, C. (1988). Media promotion of breastfeeding: 10 years of experience. Washington, DC: Academy for Educational Development.

Howie, P. W., Forsyth, J. S., Ogston, S. A., Clark, A., & Florey, C. V. (1990). Protective effect of breast feeding against infection. British Medical Journal, 300(6), 11-16.

Huffman, S. L. & Combest, C. (1988). Promotion of breastfeeding: Yes, it works! Washington, DC: Center to Prevent Childhood Malnutrition.

Kyenka-Isabirye, M. (1990). The interagency group for action on breastfeeding: Donor to donor cooperation for policy enhancement. In J. T. Queenan, M. H. Lobbok, & K. Krasovec (Eds.), Breastfeeding policy: The role of U.S.-based international organizations (Institute Issues Report #5). Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University.

Lobbok, M. H., & Koniz-Booher, P. (Eds.). (1990). Breastfeeding: Protecting a natural resource. Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University/IMPACT.

Marin, P. & de Oliveira, Y. P. (1988). The breastfeeding programme in Brazil. In D. B. Jelliffe & E. F. Jelliffe (Eds.), Programmes to promote breastfeeding (pp. 153-160). Oxford, England: Oxford Medical Publications.

United States Agency for International Development. (1990). Breastfeeding for Child Survival Strategy. Washington, DC: Author.

Victora, C. G. Vaughn, J. P., Lombardi, E., Fuchs, S. M. C., Gigante, L. P., Smith, P. C., Nobre, L. C., Teisiera, A. M. B., Moreira, L. B., & Barros, F. C. (1987). Evidence for protection by breastfeeding against infant deaths from infectious diseases in Brazil. Lancet, 2, 319-321.

Breastfeeding Promotion for Child Survival and Child Spacing: A Suitable Area for Nursing Intervention and Leadership

Rosalia Rodriguez-Garcia and Lois A. Schaefer

INTRODUCTION

The vital role of breastfeeding in infant nutrition, child survival, and child spacing¹ has been recognized by national and international professionals and institutions around the world. The combination of high fertility rates, malnutrition, and infectious diseases, together with urbanization and the continually increasing number of women entering the work force, have resulted in the rediscovery of breastfeeding as a key element of family planning and child survival programs.

The promotion of breastfeeding requires the coordinated actions of policy makers, administrators, social workers, educators, health professionals, and the media. At the same time, providing breastfeeding education and services requires the efforts of properly trained and motivated individuals. Because successful breastfeeding relies heavily on education and individual support and requires the provision of care rather than cure, it is ideally suited for nursing intervention. Nurses can play a pivotal role in promoting breastfeeding in the hospital and in the community by providing appropriate and accurate breastfeeding education and support. Nurses' involvement and leadership in breastfeeding support and promotion could very well make the difference between the short-term results and long-term impact of breastfeeding promotion programs.

Within the described framework, this paper provides an overview of the nutritional and child-spacing aspects of

¹*Birth spacing* and *child spacing* are often used interchangeably by different authors to imply similar meaning. In this article, the authors use *child spacing*. *Birth spacing* is used only when references are made to authors who use this term instead of *child spacing*.

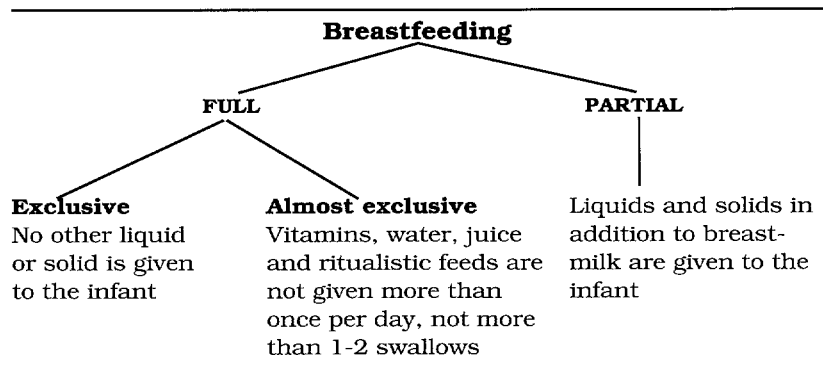
breastfeeding as well as the sociocultural, economic, and other factors that affect breastfeeding practices throughout the world. An attempt is made to demonstrate the importance of breastfeeding, and the unique role that nurses can play in international breastfeeding promotion efforts. The need to include lactation and breastfeeding education in nursing school curricula is emphasized because improved preparation in nurses' pre-service education, followed by specialized training, will equip nurses to assume a leading role in breastfeeding programs.

BREASTFEEDING FOR INFANT NUTRITION AND CHILD SURVIVAL

It has been estimated that 1 million infant lives a year can be saved in the developing world by promoting breastfeeding (Grant, 1982). Failure to breastfeed, early cessation of breastfeeding, and less than optimal breastfeeding have a negative impact on child and family health and must be addressed through breastfeeding promotion and management programs. Optimal breastfeeding patterns include: breastfeeding as soon as possible after the child is born; breastfeeding exclusively for the first 4 to 6 months; breastfeeding frequently whenever the child is hungry, both day and night; continuing to breastfeed even if the mother or child become ill; avoiding the use of bottles, pacifiers, and other artificial nipples; and breastfeeding before supplemental feedings are given, after the fourth to sixth month. If correctly and widely practiced, these patterns can decrease fertility in the postpartum months. While optimal breastfeeding provides the most complete benefits to mother and child, other breastfeeding behavior also provides many benefits that contribute to infant nutrition and child survival.

Most authors do not use consistent or clear definitions of exclusive and partial breastfeeding. For the purpose of this paper these terms have been defined as follows. *Exclusive breastfeeding* occurs when the infant receives only breastmilk from its mother; no other liquids or solids are given. With *partial breastfeeding*, the infant is given liquids and solids in addition to breastmilk (Rodriguez-Garcia, Kass-Annese, Stevenson, Klaus, & Spieler, 1988). In *almost-exclusive breastfeeding*, sips of other liquids also are given to the breastfed infant. Both exclusive and almost-exclusive breastfeeding are considered *full breastfeeding* (Labbok & Krasovec, 1990). (See Figure 1.)

Figure 1.
Schema for Breastfeeding Definitions



Source: Adapted from Labbok & Krasovec (1990). Towards consistency in breastfeeding definitions. *Studies in Family Planning*, 21(4), 226-230.

Breastfeeding is an unequalled method of satisfying the nutritional needs of an infant for the first 4 to 6 months of life. After supplementary foods are introduced, breastmilk can remain an important source of protein and other nutrients for many months. Unlike cow's milk, other animal milks or milk substitutes, human breastmilk is specifically adapted to the needs of the human infant. It contains increased amounts of readily digestible and metabolized nutrients, such as whey protein, fat, lactose, and vitamins K, D, A, C, and E, and a specific amino acid balance. Minerals contained in breastmilk, such as calcium and iron, are more efficiently and completely absorbed by infants than minerals from other sources. The appropriate concentration of proteins and electrolytes allows the infant's water needs to be met by breastmilk alone, even in hot, humid environments, as demonstrated by Brown, Kanashiro, Aguila, Romana, and Black (1986) in Peru.

Decreased obesity during infancy and later life have been attributed to breastfeeding (Lawrence, 1985). It also decreases the number and severity of allergies such as eczema and colic (Chandra, 1979), because breastmilk is not viewed as a "foreign" protein by the infant's immune system and eliminates the need for exposure to foreign proteins in breastmilk substitutes (Lawrence, 1985). Breastfeeding also is associated with decreased juvenile diabetes and lymphoma. Further, breastfeeding is

associated with improved occlusion of the teeth in later life (Labbok, 1989a).

A major advantage of breastfeeding is the immunological protection that it imparts to the infant. Both colostrum and mature breastmilk contain biologically active substances that guard against infection. These substances include immunoglobulins, primarily IgA; leukocytes, the bifidus factor, which prevents the growth of pathogenic bacteria by raising the acidity of the gut; lysozyme, an enzyme that destroys certain bacteria viruses; and lactoferrin, which inhibits the growth of enteric bacterial pathogens (Lawrence, 1985). These substances are present in colostrum--a fact that should be emphasized because many groups believe that colostrum is not valuable, or is even harmful, and that breastfeeding should not be initiated until true milk is present at the breast.

As a result of this immunological protection, the breastfed infant is less susceptible to a variety of infections, resulting in decreased infant mortality and morbidity (the latter measured by numbers of hospital admissions) (Ellestad-Sayad, Coodin, Dilling, & Haworth, 1979; Goldberg, Rodrigues, Thome, Janowitz, & Morris, 1984; Janowitz et al. 1981; Lepage, Munyakazi, & Hennart, 1981; Plank & Milanesi, 1973). Several other studies (Butz, Habicht, & DaVanzo, 1984; Habicht, DaVanza, & Butz, 1986) also have shown the protective effect of both full and partial breastfeeding; morbidity and mortality were decreased for fully breastfed infants, but were still higher than for those who were exclusively breastfed (see Table 1).

Evidence also exists for the protective effects of breastfeeding against respiratory infections and otitis media. Chandra (1979) and Saarinen (1982) documented fewer cases of otitis media and respiratory infections in breastfed infants, although there is still some question as to the mechanism by which breastfeeding prevents ear infections.

When breastfed, not only does the infant receive direct protection by immunological components in the breastmilk, but exposure to pathogens in contaminated food, liquids, and feeding utensils is also reduced, thereby preventing many diarrheas. Victora et al. (1987), in a Brazilian study, demonstrated that the risk of mortality from diarrhea was 25 times higher in infants

ages 0-2 months who were not breastfed (see Figure 2). The risk was consistently lower in exclusively breastfed infants. A dose response relationship was also seen: each additional non-breastmilk feeding per day increased the risk of infant mortality. The effect of breastfeeding on diarrhea morbidity has been documented in an urban slum area of Peru with similar results (Brown et al. 1988). Hospital-based studies in the Philippines, Costa Rica, and Indonesia have compared rates of diarrhea in the neonatal wards. With a shift from bottle to breastfeeding, the rates of diarrhea decreased from 18-40 cases per 1,000 live births to 0.1-5.5 cases per 1,000 (Clavano, 1982; Lambert, 1988; Mata et al. 1983). (See Table 2.)

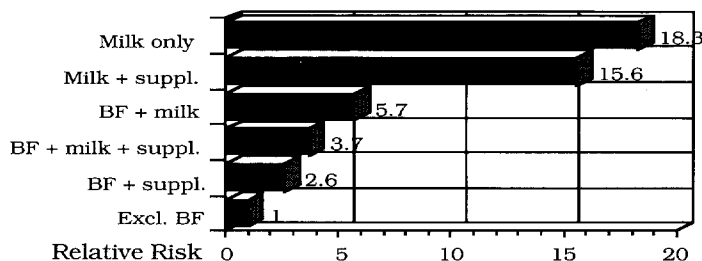
Table 1.
Mortality in the first year among infants surviving at 4 weeks, 3 months, and 6 months of age, by type of milk given, rural Chile, 1969-70

Age	Type of milk	Number of survivors	Deaths between age indicated and 50 weeks	
			No.	Rate per 1,000 survivors
4 weeks	breast only	1231	36	29.2
	breast plus bottle	125	7	56.0
	bottle only	215	13	60.5
3 months	breast only	798	11	13.8
	breast plus bottle	240	9	37.5
	bottle only	413	16	38.7
6 months	breast only	398	4	10.0
	breast plus bottle	285	4	14.0
	bottle only	604	12	19.9

Source: Plank, S. J., & Milanese, M. L. (1973). Infant feeding and infant mortality in rural Chile. *Bulletin of the World Health Organization*, 48, 203-210.

Despite the immunological protection the infant receives from breastfeeding, it is inevitable that the infant will suffer from minor illnesses from time to time, as will the mother. In most circumstances, discontinuation of breastfeeding during an illness of the infant or mother is not indicated. On the contrary, breastfeeding will be particularly beneficial to the ill child at such a time. Therefore, this is a period when the mother needs special help to continue breastfeeding. The sick infant may not suckle with sufficient vigor and the ill mother, especially if separated from the infant, may not be able to continue milk expression.

Figure 2.
Relative risk for mortality due to diarrhea by feeding mode in Porto Alegre and Pelotas, Brazil (infants ages 0-12 months)



Source: Huffman, S. L., & Combest, C. (1988). Breastfeeding: A prevention and treatment necessity for diarrhea. Washington, DC: Center to Prevent Childhood Malnutrition.

BREASTFEEDING FOR CHILD SPACING

When a mother fully or nearly fully breastfeeds² her infant and remains amenorrheic, breastfeeding is 98% effective in preventing pregnancy during the first 6 months postpartum (Kennedy, Rivera, & McNeilly, 1989), resulting in longer birth intervals. This makes its effectiveness as great as or greater than

²Full or nearly full breastfeeding occurs when (a) breastfeeding constitutes the overwhelming majority of the infant's diet; (b) breastfeeding frequency and duration are high and not affected by additional feedings; and (c) additional feedings are not replacements for breastfeeding.

Table 2.
Occurrence of and death resulting from diarrhea in
relation to mode of feeding from January 1973 to April
1977

	Mode of feeding		Diarrhea cases			
			Morbidity		Mortality	
	N	100%	N	100%	N	100%
	9,622		138		38	
Breast-fed	6,408	66.60%	6	4.35%	0	0%
Mixed-fed	611	6.35%	8	5.80%	0	0%
Formula-fed	2,603	27.05%	124	89.85%	38	100%

Source: Calvano, N. P. (1982). Mode of infant feeding and its effect on infant mortality and morbidity. *Journal of Tropical Pediatrics*, 28, 287-293.

most other methods of contraception. It has been calculated that birth spacing from lactational amenorrhea is responsible for preventing more pregnancies in developing countries than all other reversible methods of contraception combined (Kennedy et al. 1989). Longer birth intervals are associated with decreased infant and early childhood mortality. Children spaced less than two years apart are almost twice as likely to die as those spaced 2-4 years apart. Infant mortality could be decreased by 10%, and child mortality by 16%, if all births were spaced at least 2 years apart (UNICEF, 1985).

Breastfeeding postpones the return of fertility by delaying ovulation and menses. The infant's suckling at the breast stimulates nerve endings in the nipple, which promotes the production of prolactin by the pituitary gland. This same stimulation is associated with suppression of the hormones that stimulate maturation and release of ova. Therefore, there is no ovulation or menstruation when this suppression occurs. Constant, high levels of breast stimulation are necessary to completely suppress ovulation, however, and this requires frequent, day and night suckling. Any decrease in the frequency or intensity of suckling, as occurs with the use of pacifiers,

bottles, supplementary feedings, or a change in pattern due to manual expression or lifestyle changes, may decrease its contraceptive effectiveness (Labbok, 1989b).

The return of menses is a good proxy for the return of fertility and, therefore, the need for another form of contraception. The reverse, however, is not necessarily true. That is, amenorrhea is not always a certain sign of infertility. The frequency with which ovulation precedes the return of menses is neither entirely clear nor consistent. Perez, Vela, Masnick, and Potter (1972) observed that ovulation is more likely to precede the first menses in the later months of lactation than in the earlier months. Whether full or partial breastfeeding is being practiced also will have a major influence. They found that with full breastfeeding, the resumption of menstruation was preceded by ovulation less than half the time, but during partial breastfeeding, ovulation preceded menstruation in almost 75% of cases (see Table 3). Cessation of breastfeeding led to ovulation prior to menstruation in 90% of the cases. More recent research confirms this relationship (Gray et al. 1990; Kennedy et al. 1989).

Table 3.
Percentage of ovulatory first cycles by duration from birth and nursing status at time of first bleeding day postpartum

Day of first bleeding	Ovulatory first cycles					
	Fully nursing		Partial nursing		Nursing suspended	
	No. patients	Ovulatory (%)	No. patients	Ovulatory (%)	No. patients	Ovulatory (%)
0-29	--	--	--	--	--	--
30-59	8	0	7	29	18	83
60 or more	19	58	38	79	80	93
Total	27	41	45	75	98	91

Source: Perez, A., Vela, P., Masnick, G. S., & Potter, R. G. (1972). First ovulation after childbirth: the effects of breastfeeding. American Journal of Obstetrics and Gynecology, 144(8), 1041-1047.

The duration of lactational amenorrhea and the return of ovulation are primarily dependent upon the length of the breastfeeding period, the timing of supplementary feedings, and on-demand versus scheduled feedings. These factors are largely socioculturally determined and can be affected by outside influences such as economic pressures, media campaigns, and beliefs of health-care providers. Therefore, it is difficult to establish a rule that is applicable in all situations regarding the use of an alternative method of contraception. It is generally accepted by the scientific community that if a woman is breastfeeding fully or nearly fully and her menses has not returned there is no need for further family planning in the first 6 months postpartum (Kennedy et al. 1989; Rodriguez-Garcia 1989). Some women will, however, want to use a complementary method for security or for protection in case the breastfeeding pattern were to be suddenly changed. If supplemental feedings are incorporated into the infant's diet, the possibility that there may be ovulation before the first menses increases dramatically (Labbok, 1989b). Consequently, another form of family planning that is compatible with breastfeeding, such as the condom, intrauterine device (IUD), diaphragm, or progestin-only pills (the pill containing estrogen can decrease milk production) should be used. (Natural methods are compatible but require additional education.) As breastfeeding continues to benefit the infant, it should be encouraged as long as possible.

ADDITIONAL MATERNAL AND CHILD BENEFITS OF BREASTFEEDING

In the immediate postpartum period, breastfeeding promotes uterine contraction and involution, thereby decreasing the chance of postpartum hemorrhage. Breastfeeding also has been shown to have a protective effect against ovarian (Schneider, 1987) and breast cancers (Family Health International, 1989).

Bonding between mother and infant appears to be enhanced by the intimate contact provided by breastfeeding. The first few hours and days after birth seem to be an especially sensitive period that may have long-lasting effects on the mother's attachment to her child. Early mother-infant contact has been shown to be associated with increased rates of breastfeeding, reductions in infections, improvements in growth, and improved infant body warmth regulation (Klaus & Kennel, 1983; Lawrence,

1985). Other important benefits involve the ease and convenience of breastfeeding over bottlefeeding. There is no need for utensils, preparation, cleaning, and other time-consuming tasks. Breastmilk is always available to the mother--it is always portable.

THE ECONOMIC IMPACT OF BREASTFEEDING

The economic benefits of breastfeeding are visible on both the micro- and macro-levels. On the micro-, or family-level, breastfeeding eliminates the expense of formula, bottles, and other equipment for sterilization. The cost of adequately feeding an infant with formula has been estimated to be at least \$200-\$300 for the first year of life, or 15%-140% of the annual per capita income of most families in developing countries of the world (McCann, Liskin, Piotrow, Rinehart, & Fox, 1984). This does not include medical costs associated with the increased morbidity and mortality attributed to bottlefeeding. Supplying the mother's diet to ensure high-quality breastmilk and to improve her nutritional status costs much less than formula feeding. However, this does not take into consideration the opportunity costs of the time spent in breastfeeding; that is, the value of time spent by the mother breastfeeding rather than doing something else, given that bottle milk can be given to the child by individuals other than the mother.

On the macro-, or national level, a decreased reliance on imported milk substitutes that must be purchased with scarce foreign exchange funds can have a very positive effect on the overall economy. Monies will then become available for purchasing more vitally needed commodities in the international market. Changing hospital and health facility policies to encourage breastfeeding will free the resources currently used to buy formula, bottles, and other equipment, and to staff nurseries. Rooming-in allows the same nurse to care for mother and infant, and to spend more time providing breastfeeding education and support rather than giving bottles.

INCIDENCE AND DURATION OF BREASTFEEDING IN DEVELOPING COUNTRIES

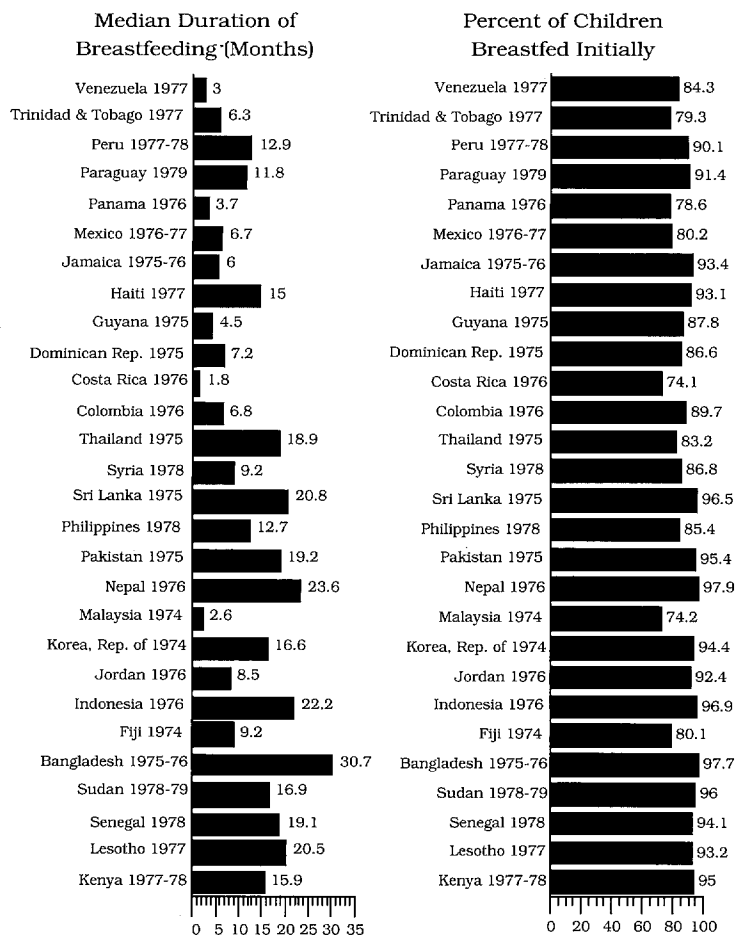
According to Population Reports (McCann et al. 1984), approximately 90% of women in developing countries breastfeed

their newborn infants. A slightly higher percentage (over 90%) do so in Africa and Asia than in Latin America and the Caribbean (85%). The duration of breastfeeding is longer in Africa and Asia as well, with a median of 11 months, and 70% of 6-month-old infants still being breastfed (see Figures 3 and 4). In Latin America and the Caribbean, however, the median ranges from 2-15 months, with only 35-60% of 6-month-old infants still being breastfed. Trends indicate, however, that despite the many benefits of breastfeeding, its incidence and duration are declining, particularly among better educated, more affluent urban women. While each country or region has its own unique pattern, fewer women in the developing world are initiating breastfeeding and those who do are continuing for shorter periods. This is especially true of Latin America. Even the increase in breastfeeding in some industrialized countries cannot offset this worldwide trend. For example, less than 5% of women in the cities of Sao Paulo, Brazil; Panama City; and San Salvador breastfeed for 6 months or more. In the state of Sao Paulo, less than 50% breastfeed for even 1 month. In southern Brazil, a survey of outpatient clinics showed that in 1940, 98% of infants were initially breastfed; in 1974, 76%. The percentage of women who were still fully breastfeeding at 6 months fell from 60 to 12. These trends are cause for concern among health professionals as decreased breastfeeding will have a negative impact on infant health and child spacing.

FACTORS AFFECTING BREASTFEEDING PRACTICES

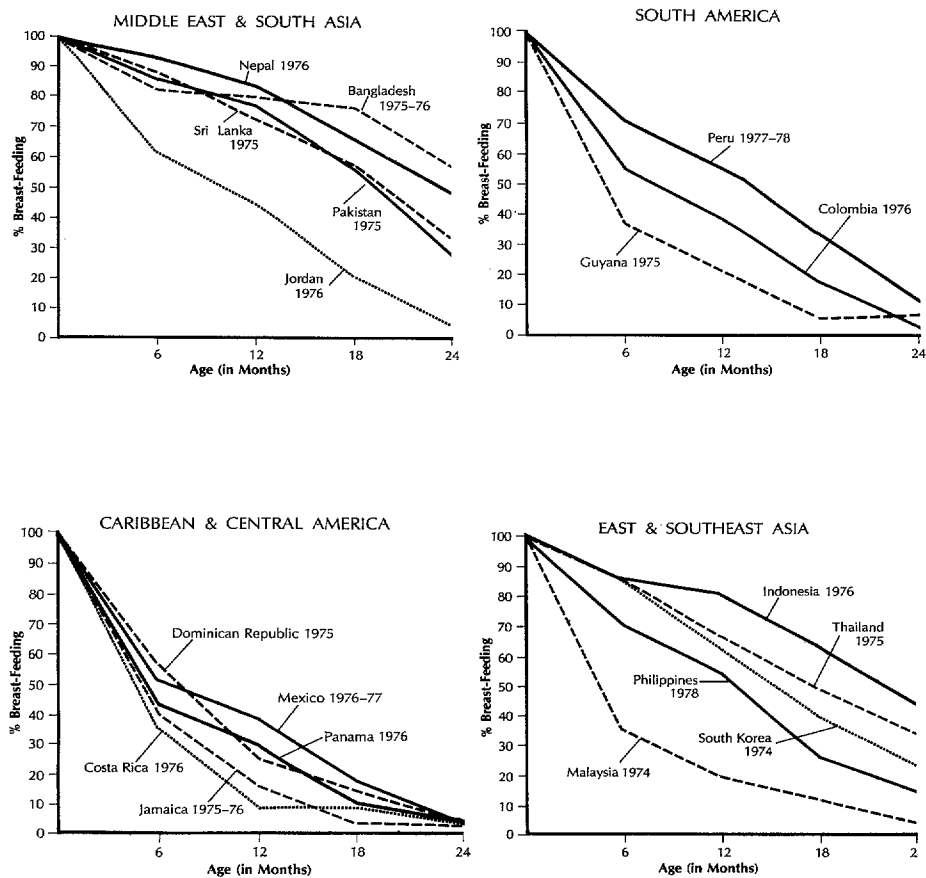
A variety of sociocultural, demographic, educational, and psychosocial factors contribute to the decline in breastfeeding. Modern technologies and modification of social structures have led to rapidly changing life styles that no longer value or support breastfeeding. Widespread economic difficulties throughout the world encourage population shifts from rural to urban areas that are frequently accompanied by increased participation of women in the wage-earning labor force and the breakup of the extended family (Rodriguez-Garcia, 1990). Women must work outside the home to ensure the economic survival of their families. Being separated from their infants all day makes it difficult for mothers to breastfeed, especially at an optimal level. However, studies show that "reverse rhythm" breastfeeding (breastfeeding during the night rather than during the day) and hand or pump expression of milk allow breastfeeding to continue when the

Figure 3.
Percentage of children breastfed initially and duration
of breastfeeding in 28 developing countries, World
Fertility Survey data



Source: McCann, M. F., Liskin, L. S., Piotrow, P. T., Rinehart, W., & Fox, G. (1981, revised 1984). Breastfeeding, fertility and family planning. *Population Reports* (Series J. No. 24). Baltimore, MD: Population Information Program.

Figure 4.
Percentage of women initiating breastfeeding who continue to breastfeed, by infant's age, in developing countries, World Fertility Survey data



Source: McCann, M. F., Liskin, L. S., Piotrow, P. T., Rinehart, W., & Fox, G. (1981, revised 1984). Breastfeeding, fertility and family planning. Population Reports (Series J. No. 24). Baltimore, MD: Population Information Program.

mother is working outside the home (Labbok, personal communication, 1989). At the same time, as extended families break up due to increased mobility and economic constraints, many mothers are denied the support and knowledge of the women who traditionally would have been their breastfeeding teachers and child-care and household helpers. Few societies have developed alternative support systems for these mothers. In some countries, community-based promoters are beginning to play a unique teaching and catalyst role. For example, in Mexico, a project is being completed that combines individual and group teaching of mothers by community-based promoters. Preliminary data indicate the unique role of the promoters in increasing the number of mothers exclusively breastfeeding their infants for 4 to 6 months, and in facilitating the formation of informal mothers support groups (Rodriguez-Garcia, Aumack, Gallegos-Vasquez, & Ramos-Chacon, 1988, 1990).

Capitalistic systems have played a role in the decline of breastfeeding as well. Formula manufacturers have advertised their products in developing countries as the modern and highly desirable form of infant feeding practiced by rich and educated women--the bottle has become a status symbol. They have also misleadingly presented formula as being as good as, or even better than, breastmilk for infants; and any mother who cares about her children will naturally want to give them the best. This is reinforced by distributing free samples of formula, a practice that has been shown to decrease breastfeeding (Bergevin, Dougherty, & Kramer, 1983).

Health-care providers too often support these attitudes toward bottlefeeding. They, too, have been misled by formula manufacturers, and they in turn pass this misinformation and free formula samples on to mothers. In addition, health professionals have developed hospital routines and practices that often serve to inhibit successful breastfeeding. Among these practices are the separation of the mother and infant, especially during the first 24-hours postpartum; heavy use of anesthesia during labor and delivery; scheduled infant feedings and routine use of supplementary formula, glucose, water, and teas; distribution of free formula samples; and the mothers' lack of access to their infants during their hospital stays. Furthermore, health-care providers will often suppress breastfeeding during illness, either by separating the mother and infant and limiting

contact between the two, or by actively discouraging breastfeeding as nutritionally inadequate or even harmful to the sick infant. Health-care providers also make inappropriate use of growth charts; slowed growth is viewed as cause for supplementation rather than for review and improvement of the mother's breastfeeding practices. These procedures are viewed by many hospitals as the provision of efficient and effective services and little thought is given to the implications of these routines on the practice of breastfeeding. The implications are twofold: they not only promote bottlefeeding, but they hinder the appropriate establishment of the hormonal feedback systems that control breastfeeding, without which even the most determined mother cannot succeed. Breastfeeding support and management needs to be made an integral part of perinatal care services for women.

Finally, the sexual connotations and societal attitudes toward the breast have limited breastfeeding in some countries by making women reluctant to breastfeed their infants in public. Also, many women have the mistaken idea that breastfeeding will ruin their figures and therefore they prefer to bottlefeed. Until the impact of these factors is recognized and reversed, breastfeeding is likely to continue to decline.

KEY ELEMENTS OF BREASTFEEDING PROMOTION

Breastfeeding promotion and outreach can be defined as those efforts directed at furthering the acceptance and practice of breastfeeding at the local, national, regional, or international levels (see Table 4). Its purpose is to bring about a positive change in the knowledge and attitudes of the population at large and in the practices of mothers, in particular, with regard to breastfeeding. Therefore, while pregnant and nursing mothers and women of reproductive age are the primary targets, other segments of the population also are important because their attitudes and opinions influence those of mothers. Other target groups include spouses, children, and elders; community, national, and local leaders; community workers; and health professionals. Each group requires a different approach, and a comprehensive breastfeeding promotion program will address as many of these targets as possible. Among its components may be

- appropriate workers' legislation, hospital regulations, and policy initiatives

- training and education for health professionals
- availability of breastfeeding education and services
- community-based and other support groups for mothers
- a communication approach that combines mass media and other educational and marketing strategies

An oversight of many breastfeeding promotion programs is that they target their efforts to a homogeneous female population. Women are not a homogeneous group, but rather, they can be stratified according to several criteria including their socio-economic and cultural-educational situations. Therefore, for breastfeeding promotion to be effective, promotion and outreach

Table 4.
Outreach strategies for breastfeeding promotion

The combination into a comprehensive program action of all those efforts--information, education, communication, training, marketing, and research--geared toward

- expanding community awareness of and access to breastfeeding and education services
 - expanding breastfeeding education and service delivery points
 - increasing the proportion of women breastfeeding exclusively
 - increasing the proportion of women who initiate and continue breastfeeding
 - developing knowledge based on breastfeeding practices and factors affecting women's choices to breastfeed
 - affecting national policies regarding breastfeeding
-

Source: Adapted from Rodriguez-Garcia, R. (Ed.). (1987). Outreach strategy for natural family planning. Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University.

strategies must be developed for and directed toward each segment of the female population, based on an understanding of the women's beliefs and attitudes towards breastfeeding, their freedom to make choices, their lifestyles, and their professional objectives. This is particularly relevant to working and employed mothers as they can be divided into distinct strata ranging from those who work at home or in the fields where they might have more access to their infants during the day to those mothers employed in offices and factories where their time is controlled by others. Women in each situation have specific needs that must be addressed to ensure that they will not perceive breastfeeding as an additional burden pressed upon them by outside forces (Rodriguez-Garcia, 1990).

THE ROLE OF HEALTH PROFESSIONALS IN BREASTFEEDING PROMOTION

The role of health professionals, particularly nurses, in breastfeeding promotion, outreach, support, and management is key to its success. Several critical contact points when information on breastfeeding and adequate support would most influence the decision to initiate and continue breastfeeding and its duration have been identified. These include

- during reproduction, sexuality, and parenthood education
- prior to pregnancy
- during prenatal exams and courses in preparation for childbirth
- in the delivery room
- during the hospital stay following delivery
- upon discharge from the hospital
- at the postpartum and other postnatal checkups
- when menses return

- when problems occur, such as poor infant weight gain or the development of sore and cracked nipples
- when supplementary foods and contraception are introduced
- when planning to return to the work site

At these times, the mother needs both information and, perhaps more importantly, support; she needs both knowledge and practice. It has been shown that, while most mothers experience some difficulties with breastfeeding, those that continue to breastfeed despite these difficulties are those who receive adequate support (Pechavis, 1981). In reviewing these critical contact points, it is clear that nurses are the health personnel most in contact with mothers at these times. Nurses are the gatekeepers to the successful initiation and maintenance of breastfeeding; if they lack the training and expertise to support and manage breastfeeding, other promotional efforts are unlikely to succeed.

Studies have documented the negative influence that the lack of health professionals' knowledge can have on mothers in both developed and developing countries. A study by Winikoff, Laukaran, Myers, and Stone (1986) conducted in a large municipal hospital in the United States found that the predominant assumption conveyed to mothers by health professionals was that bottlefeeding was expected. This attitude was reinforced by hospital routines, such as separation of mother and child, routine provision of formula to all infants, and the health professionals' lack of knowledge about the physiology and management of breastfeeding. As a consequence, only 16% of mothers attempted breastfeeding and no infants left the hospital having been exclusively breastfed (see Table 5). In Mexico (Potter, Mojarro, & Nunez, 1987), the infant feeding practices of mothers delivered in public hospitals, private hospitals, and by traditional birth attendants (TBAs) were compared. The highest level and longest duration of breastfeeding was found in mothers delivered by TBAs. Public hospitals had fewer of the routines and practices harmful to breastfeeding initiation, and performed better than private hospitals. It is notable that all trained health professionals interviewed in the Potter study recognized the superiority of breastfeeding but did not encourage it during cases of infant diarrhea or for prolonged periods, and they had little confidence in its contraceptive effect.

Table 5.
Clinicians giving correct answers to questions on
breastfeeding and breastmilk*

Colostrum should not be fed to a baby. It is better to wait until the first milk appears before putting the baby to breast. (False)

<u>Physicians</u>		<u>Nursing Staff</u>	
Pediatricians	Obstetricians	Pediatrics	Obstetrics
100% (5)	73% (8)	85% (58)	74% (23)

A baby with diarrhea should be taken off the breast for at least 24 hours. (False)

<u>Physicians</u>		<u>Nursing Staff</u>	
Pediatricians	Obstetrics	Pediatrics	Obstetrics
67% (4)	27% (3)	28% (19)	23% (7)

It has been found that some babies are allergic to breast milk and should be bottlefed. (False)

<u>Physicians</u>		<u>Nursing Staff</u>	
Pediatricians	Obstetrics	Pediatrics	Obstetrics
50% (3)	36% (4)	56% (38)	39% (12)

It is generally best for mothers who breastfeed to give supplementary bottles regularly. (False)

<u>Physicians</u>		<u>Nursing Staff</u>	
Pediatricians	Obstetrics	Pediatrics	Obstetrics
67% (4)	64% (7)	68% (46)	52% (16)

A breastfed baby is less likely to get diarrhea than a bottlefed baby. (True)

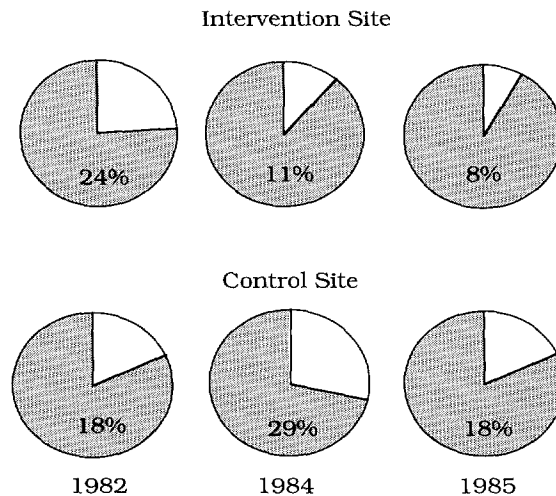
<u>Physicians</u>		<u>Nursing Staff</u>	
Pediatricians	Obstetricians	Pediatrics	Obstetrics
83% (5)	82% (9)	57% (39)	48% (15)

*Correct answer given in brackets. Numbers in parentheses are numbers of responses.

Source: Adapted from Winikoff, B., Laukaran, V. H., Myers, D., & Stone, R. (1986). Dynamics of infant feeding: Mothers, professionals, and the institutional context in a large urban hospital. *Pediatrics*, 77(3), 357-365.

A review of breastfeeding promotion projects throughout the world demonstrated that a common element of successful programs was the education and training of nurses and other health professionals about the benefits of breastfeeding. This frequently led to changes in hospital practices as well as to provision of the individualized instruction and support necessary for mothers to successfully initiate breastfeeding (Huffman & Combest, 1988). In the follow-up to the U.S. study cited earlier, breastfeeding education was provided to nurses and other health professionals. As a result of their increased knowledge, there were changes in hospital policies and routines, which led to an increase in the incidence and exclusivity of breastfeeding (Winikoff, Myers, Laukaran, & Stone, 1987) (see Figure 5). Other studies (Rodriguez-Garcia et al. 1988, 1990), have demonstrated the key role of community health workers as well in the initiation and maintenance of optimal breastfeeding practices.

Figure 5.
Percentage of breastfeedings supplemented with infant formula



Source: Winikoff, B., Myers, D., Laukaran, V. H., & Stone, R. (1987). Overcoming obstacles to breastfeeding in a large municipal hospital and applications of lessons learned. *Pediatrics*, 80(3), 423-433.

In December 1988, WHO and UNICEF presented "Ten Steps to Successful Breastfeeding" (see Table 6) at the Interagency Breastfeeding Meeting organized by Georgetown University, Institute for International Studies in Natural Family Planning, and held in Washington, DC, USA. This statement addresses hospital-based practices and the knowledge base recommended for health-care personnel.

Table 6.
Ten steps to successful breastfeeding

Every facility providing maternity services and care for newborn infants should

1. have a written breastfeeding policy that is routinely communicated to all health-care staff
2. train all health-care staff in the skills necessary to implement this policy
3. inform all pregnant women about the benefits and management of breastfeeding
4. help mothers initiate breastfeeding within a half-hour of birth
5. show mothers how to breastfeed and how to maintain lactation even if they are separated from their infants
6. give newborn infants no food or drink other than breastmilk unless medically indicated
7. practice rooming-in--allowing mothers and infants to stay together--24 hours a day
8. encourage breastfeeding on demand
9. give no artificial teats or pacifiers (also called dummies and soothers) to breastfeeding infants
10. foster the establishment of breastfeeding support groups and refer mothers to them on discharge from hospital or clinic

Source: WHO/UNICEF. (1989). Protecting, promoting and supporting breastfeeding: The special role of maternity services. Geneva: World Health Organization.

BREASTFEEDING IN THE NURSING CURRICULA

Are most basic nursing curricula preparing nurses to be effective lactation teachers and managers? In most cases, the answer is no. Adequate theoretical information regarding the process of lactation, its management and promotion is not often included in nursing programs. Not even the maternal-child health component of nursing curricula provides enough opportunity for actual contact with mothers and infants. Appropriate training that combines scientific knowledge with hands-on clinical practice is essential if nurses are to assume leading roles in lactation teaching and management and to contribute to the promotion of breastfeeding worldwide.

Experience indicates that the integration of new or "rediscovered" subjects into nursing curricula is not easy. Competing priorities are likely to result in difficulties in distributing time among subject areas. A traditional orientation, for example, toward a medical-rather than a nursing-based curricula, which is still being used in many countries, tends to allow more time for learning surgical assistantship than for other educational activities. In those curricula that include lactation, breastfeeding frequently falls between the "hard" disciplines and the student receives neither the theoretical knowledge nor practical experience necessary to successfully manage and teach breastfeeding.

As nursing education and training are one of the programmatic cornerstones of breastfeeding promotion, changes need to be made in the curricula to close this gap. While training nurses in the area of breastfeeding can be accomplished a variety of ways, its integration into the nursing school curriculum is preferred because it could then be sustained on a permanent basis. In this manner, all nurses will be reached before entering practice, allowing them to assume the role of breastfeeding advocate, educator, and manager from the outset. To this end, curricula that address both theoretical and practical issues of breastfeeding as a child-survival and child-spacing intervention are recommended.

Curriculum development can be a complicated process, and resources and assistance in this area are often difficult to find. Combined with a perhaps limited knowledge of breastfeeding

itself, barriers to curriculum change may be great. Making changes is not impossible, however, and there are strategies available to the nurse educator to facilitate the change process. There are multiple levels at which nursing curricula may be influenced. Identifying those at which it is possible to have the greatest and/or most immediate impact is basic to developing a change strategy.

Change is the most difficult and time consuming at the administrative level of the university. While official approval and support is extremely important for institutionalizing the new curriculum and ensuring its sustainability over time, it is not necessary to wait for this to be accomplished before acting on other levels. It is essential that the nursing school and faculty recognize the need for curriculum change and support its implementation. However, to achieve even this degree of recognition, it may be necessary to first work at the individual level with other faculty members, providing information on breastfeeding and the nurse's role in its promotion. Most instructors also have a certain degree of freedom in designing and developing the materials they will teach and can begin to incorporate more appropriate breastfeeding training into their classes or as the focus of special projects for students. Finally, it is possible to provide breastfeeding education and training for faculty and students on an extracurricular level in the form of special seminars, workshops, in-service classes, publications, video presentations, and so on.

While there are various approaches to designing curricula, the process proposed here is that of module development because of its adaptability to a wide spectrum of teaching/learning needs. The first step in the process is to organize the material to be taught into discrete, topical units that follow a logical and timely progression. This results in an outline or framework that is then enhanced by information necessary to make it a useful teaching tool as has been done in this volume (see Table 7). The module approach requires that for each unit, learning objectives, core content, teaching methodology, necessary resources and materials, and an evaluation plan be identified. The module thus provides an outline or guide to core material that can be used in a wide variety of teaching situations, plus support materials. Although there is variation among the existing breastfeeding training programs for health professionals, they all share certain

core topics such as the physiology of lactation, breastfeeding management and techniques, breastfeeding under special circumstances, family planning methods for breastfeeding women, and the WHO/UNICEF Code of Marketing of Breast Milk Substitutes.

The advantages of the modular approach to curriculum development are that it makes the testing of the module less cumbersome and it allows a great deal of flexibility in the utilization of the material developed. Avoiding excessive situational detail and specificity is key to the development process if the final product is to be used to its maximal potential and adapted to a variety of teaching situations and socio-educational contexts.

Table 7.
Sample breastfeeding module format

Unit title

Objectives	Core Content	Teaching Methodology	Audiovisual/ Print Materials	Other Resources	Evaluation Questions
At the end of this section, the student will be able to	1. The impact of modern health services on breast-feeding	-Small group discussion - Faculty/trainer summarizes and highlights principles	-Video presentation -Articles	-Human resources -Physical facilities -Funds/approvals	Include questions for pre- and post-testing

Prior to implementing the module, it is vital to accurately identify the target audience, their current knowledge and skill level, what they need to know, and how they will use what they have learned once the module is completed. Based on this information, it can then be decided how to adapt and/or expand parts of the entire module, how long implementation of each unit will take, and the breakdown between theoretical instruction and practicum that is desirable. Further adaptation of the learning objectives, core content, teaching methodologies, and other previously mentioned elements also will be necessary to directly address the learning needs of the audience.

A module developed in this manner can be both integrated fully into nursing school curricula and used as a freestanding teaching package, according to each school's and faculty's needs. It can be used for intensive workshops and for seminars of varying length or broken into units and integrated into other subjects in the nursing curriculum. It can also be used/adapted for in-service nursing education. Such a module can be adapted for use with nursing faculty, nursing students, and nursing as well as other service providers. Implementation of the module as described will achieve greater, more rapid results in the short run, while working for its full integration into the official nursing curricula would assure the ongoing teaching of breastfeeding to nursing students. It must be kept in mind that only full integration of the module into schools' curricula will ensure its permanency.

CONCLUSION

Breastfeeding is an unsurpassed method for providing complete nutrition requirements and health protection for the growth and development of infants and can be an effective method of child spacing. Nevertheless, the incidence and duration of breastfeeding have been declining in many parts of the world over past decades. Nurses can and should play a vital role in contributing to worldwide efforts to stop this decline. Also, nurses can and should promote expansion of breastfeeding by virtue of their frequent contact with mothers at times critical to the initiation and support of breastfeeding practices. Therefore, further training in lactation theory, practice with mothers, and breastfeeding promotion and outreach would equip nurses with the knowledge and skills necessary to provide quality services and enable them to assume positions of leadership in breastfeeding promotion efforts.

The strategies suggested in this paper are offered as guidelines for those who are interested in updating and/or developing a breastfeeding module for use in nursing and other professional schools. We are cognizant of the lengthy process that curricula revisions and official endorsement require, and we believe that nurses can make a difference by using alternative approaches to curriculum development and teaching in their schools and/or work sites. Development of a modular curriculum in breastfeeding will allow the needs of pre-service, in-service, and continuing

education to be addressed simultaneously and with minimal duplication of effort. Energy can then be directed toward adapting the core module to meet the needs of the particular situation at hand, thereby maximizing the teaching and learning that occurs. As a result of implementing the module, nursing, medical, and other students and faculty will be better prepared to promote breastfeeding and to provide breastfeeding education and services to their clients, and mothers and children everywhere will live healthier, safer lives.

REFERENCES

- Bergevin, Y., Dougherty, C., & Kramer, M. S. (1983). Do infant formula samples shorten the duration of breastfeeding? Lancet, 1, 1148-1151.
- Brown, K. H., Creed de Kanashiro, H., del Aguila, R., Lopez de Romana, G., & Black, R. E. (1986). Milk consumption and hydration status of exclusively breast-fed infants in a warm climate. The Journal of Pediatrics, 108(1), 677-680.
- Brown, K. H., Castañaduy, A. S., Saavedra, J. M., Lembcke, J., Rivas, D., Robertson, A. D., Yolken, R., & Sack, B. R. (1988). Effect of continued oral feeding on clinical and nutritional outcomes of acute diarrhea in children. The Journal of Pediatrics, 112, 191-200.
- Butz, W. P., Habicht, J. P., & DaVanzo, J. (1984). Environmental factors in the relationship between breast-feeding and infant mortality: the role of sanitation and water in Malaysia. American Journal of Epidemiology, 119(4), 516-525.
- Chandra, R. K. (1979). Prospective studies of the effect of breast-feeding on incidence of infection and allergy. Acta Paediatrica Scandinavica, 68, 691-694.
- Clavano, N. P. (1982). Mode of infant feeding and its effect on infant mortality and morbidity. Journal of Tropical Pediatrics, 28, 287-293.
- Ellestad-Sayed, J., Coodin, F. J., Dilling, L. A., & Haworth, J. C. (1979). Breastfeeding protects against infection in Indian infants. Canadian Medical Association Journal, 120, 295-298.
- Family Health International. (1989). Breastfeeding to prevent breast cancer. Network, 10(3), 6-8.
- Goldberg, H. I., Rodrigues, W., Thome, A. M. T., Janowitz, B., & Morris, L. (1984). Infant mortality and breastfeeding in north-eastern Brazil. Population Studies, 38, 105-115.

Grant, J. P. (1982). The State of the World's Children 1982-1983. Oxford, England: Oxford University Press.

Gray, R. H., Campbell, O. M., Apelo, R., Eslami, S., Zacur, H., Ramos, R., Gehret, J. C., & Labbok, M. H. (1990). Risk of ovulation during lactation. Lancet, *335*, 25-29.

Habicht, J. P., DaVanzo, J., & Butz, W. P. (1986). Does breastfeeding really save lives, or are apparent benefits due to biases? American Journal of Epidemiology, *123*(2), 279-290.

Howie, P. W. (1986). Synopsis of research on breastfeeding and fertility. In M. Shivanandan (Ed.), Selected Papers from the Fourth National and International Symposium on Natural Family Planning (pp. 7-22). Bethesda, MD: KM Associates.

Huffman, S. L., & Combest, C. (1988a). Breastfeeding: A prevention and treatment necessity for diarrhea. Washington, DC: Center to Prevent Childhood Malnutrition.

Huffman, S. L., & Combest, C. (1988). Promotion of breastfeeding: Yes, it works! Washington, DC: Center to Prevent Childhood Malnutrition.

Janowitz, B., Lewis, J. H., Parnell, A., Hefnawi, F., Younis, M. N., & Serour, G. A. (1981). Breastfeeding and child survival in Egypt. Journal of Biosocial Science, *13*, 287-297.

Kennedy, K., Rivera, R., & McNeilly, A. S. (1989). Consensus statement on the use of breastfeeding as a family planning method. Contraception, *39*(5), 477-496.

Klaus, H., & Kennell, J. (1983). Bonding: The beginnings of parent-infant attachment. St. Louis, MO: The C.V. Mosby Company.

Labbok, M. (1985). Consequences of breastfeeding for mother and child. Journal of Biosocial Science, *9*(Suppl.), 43-54.

Labbok, M. (1989a). Breastfeeding and family planning programs: A vital complementarity. In N. Baumslag (Ed.), Breastfeeding: The passport to life (pp. 48-55). New York, NY: NGO Committee on UNICEF.

Labbok, M. (1989b). Breastfeeding and Fertility. Mothers and Children, 8(Suppl.), 1-3.

Labbok, M., & Krasovec, K. (1990). Towards consistency in breastfeeding definitions. Studies in Family Planning, 21(4), 226-230.

Lambert, J. (1988). Pakistan: Update on breastfeeding. Mothers and Children, 7(2), 5-6.

Lawrence, E. (1985). Breastfeeding: A guide for the medical profession, (2nd ed.). St. Louis, MO: The C.V. Mosby Company.

Lepage, P., Munyakazi, C., & Hennart, C. (1981). Breastfeeding and hospital mortality in children in Rwanda. Lancet, 11, 409-411.

Mata, L., Allen, M. A., Jimenes, P., Garcia, M. E., Vargas, W., Rodriguez, M. E., & Valerin, C. (1983). Promotion of breastfeeding, health, and growth among hospital-born neonates, and among infants of a rural area of Costa Rica. In L. C. Chen & N. S. Scrimshaw (Eds.), Diarrhea and malnutrition: Interactions, mechanisms and interventions (pp. 177-202). New York, NY: Plenum Press.

McCann, M. F., Liskin, L. S., Piotrow, P. T., Rinehart, W., & Fox, G. (1981, revised 1984). Breastfeeding, fertility and family planning. Population Reports, (Series J. No. 24). Baltimore, MD: Population Information Program.

Pechevis, M. (1981). Training health personnel in the area of breastfeeding. Assignment Children, 55/56, 91-105.

Perez, A., Vela, P., Masnick, G. S., & Potter, R. G. (1972). First ovulation after childbirth: the effects of breastfeeding. American Journal of Obstetrics and Gynecology, 144(8), 1041-1047.

Plank, S. J., & Milanesi, M. L. (1973). Infant feeding and infant mortality in rural Chile. Bulletin of the World Health Organization, 48, 203-210.

Potter, J. E., Mojarro, O., & Nunez, L. (1987). The influence of maternal health care on the prevalence and duration of breastfeeding in rural Mexico. Studies in Family Planning, 18(6), 309-319.

Rodriguez-Garcia, R. (1990). Breastfeeding and the working mother: The freedom to choose. The International Journal of Human Lactation, 6(2), 47-48.

Rodriguez-Garcia, R. (Ed.). (1987). Outreach strategy for natural family planning. Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University.

Rodriguez-Garcia, R. (Ed.). (1989). Natural family planning: A good option. Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University.

Rodriguez-Garcia, R., Aumack, K. J., Gallegos-Vasquez, N., & Ramos-Chacon, R. (1988). Mexico: Breastfeeding promotion. A community based approach. Mothers and Children, 7(2), 4.

Rodriguez-Garcia, R., Aumack, K. J., & Ramos, A. (1990). A community-based approach to the promotion of breastfeeding. Journal of Obstetric, Gynecologic and Neonatal Nursing, 19(5), 431-438.

Rodriguez-Garcia, R., Kass-Annese, B., Stevenson, W., Klaus, H., & Spieler, J. (1988). Glossary of natural family planning terms. Washington, DC: Institute for International Studies in Natural Family Planning, Georgetown University.

Saarinen, U. M. (1982). Prolonged breastfeeding as prophylaxis for recurrent otitis media. Acta Paediatrica Scandinavica, 71, 567-571.

Schneider, A. P. (1987). Risk factor for ovarian cancer (Letter to the editor). New England Journal of Medicine, 317 (8), 508-509.

UNICEF (1985). State of the World's Children. New York, NY: UNICEF.

Victora, C. G., Vaughn, J. P., Lombardi, C., Fuchs, S. M. C., Gigante, L. P., Smith, P. C., Nobre, L. C., Teixeira, A. M. B., Moreira, L. B., & Barros, F. C. (1987). Evidence for protection by breastfeeding against infant deaths from infectious diseases in Brazil. Lancet, 2, 319-321.

WHO/UNICEF. (1989). Ten steps to successful breastfeeding. Protecting, promoting and supporting breastfeeding: The special role of maternity services. Geneva: World Health Organization.

Winikoff, B., Laukaran, V. H., Myers, D., & Stone, R. (1986). Dynamics of infant feeding: Mothers, professionals, and the institutional context in a large urban hospital. Pediatrics, 77(3), 357-365.

Winikoff, B., Myers, D., Laukaran, V. H., & Stone, R. (1987). Overcoming obstacles to breastfeeding in a large municipal hospital and applications of lessons learned. Pediatrics, 80(3), 423-433.

The Promotion of Breastfeeding in the Americas

Elbio Nestor Suarez Ojeda

REFLECTIONS ON THE STATE OF INFANT HEALTH IN LATIN AMERICA

Deaths in children under 5 years of age represent 34% of all deaths in the Latin American region. This figure compares favorably with the situation in Africa and Asia, but is 11 times higher than in developed countries (see Figure 1).

Infant mortality rates vary between Latin American countries. Some countries, for example Bolivia, have infant mortality rates of well over 100 deaths per 1,000 live births, whereas others, such as Puerto Rico and Cuba, have rates close to 10 (see Figure 2). If all Latin American countries were to fall into this last category, 500,000 children would be saved every year.

In the last 30 years there has been a significant decrease of close to 50% in infant mortality worldwide. Nevertheless, none of the Latin American or Caribbean subregions has been able to decrease infant mortality as much as in North America, where it dropped 56% during this period (see Figure 3).

This noteworthy decline in infant mortality has gradually slowed, however, resulting in little change in the statistics during the 1980s, even in those countries that achieved the largest reductions over the past 20 years (see Figure 4). After 1985, in particular, the impact of the social and economic crisis began to be noticed in the infant mortality rates.

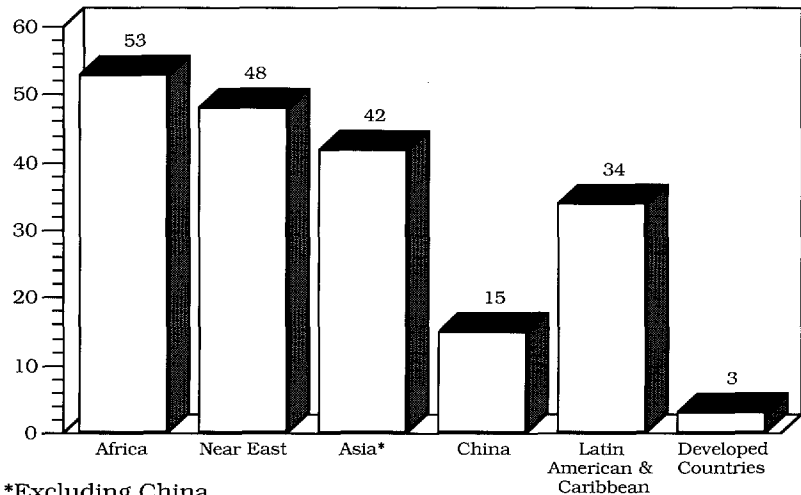
It is traditional to divide infant mortality into two components: neonatal, which is those deaths in infants less than 28 days old; and postneonatal, which is those deaths occurring from 28 days to 1 year of age. The first is frequently attributable to biological and genetic factors that cannot be cured by current medical knowledge. The second is dependent on socioeconomic factors and is reducible, especially through primary health-care

interventions. For this reason, the importance of the neonatal component is greater in the more developed countries with lower infant mortality rates (the United States), while the contribution of postneonatal deaths is proportionately higher in less developed countries such as Honduras (see Figure 5). It is in these countries where the postneonatal mortality is of greater importance that breastfeeding should be maintained and strengthened as a strategy to reduce infant mortality.

An analysis of causes of death reveals a different structure according to the level of development and health services achieved by each country. For example, in the United States, prenatal

Figure 1.
Child mortality and numbers of deaths by region;
deaths of children under age 5 as a percent of all deaths,
1985

Percentage



*Excluding China

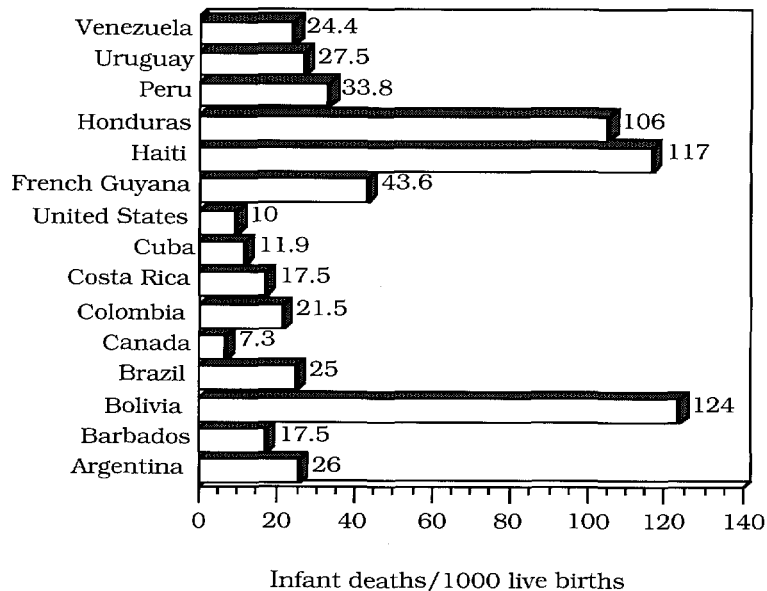
The 11.9 percent of world's population under age 5 contributed almost one-third of all deaths.

Source: Galway, K., Wolff, B., & Sturgis, R. (1987). Child survival: Risks and the road to health. Columbia, MD: Institute for Resource Development/Westinghouse.

causes and congenital anomalies are responsible for more than 80% of deaths in the first year of life. In Argentina, these causes account for 70% of such deaths, and in Honduras, they are less than 25%. On the other hand, in Honduras, intestinal infections cause 34.5% of infant deaths, while in the United States they are not even included among the principal causes (see Figure 6).

The change in the structure of the leading causes of infant mortality is clearly associated with the decrease in the global infant mortality rate, as can be seen in Figure 7, which compares the rates and causes of infant mortality in Honduras, Costa Rica, and the United States. In Honduras, there is a clear predominance of infections (intestinal and respiratory) and a high proportion of

Figure 2.
Region of the Americas
Infant mortality rates (circa 1989)

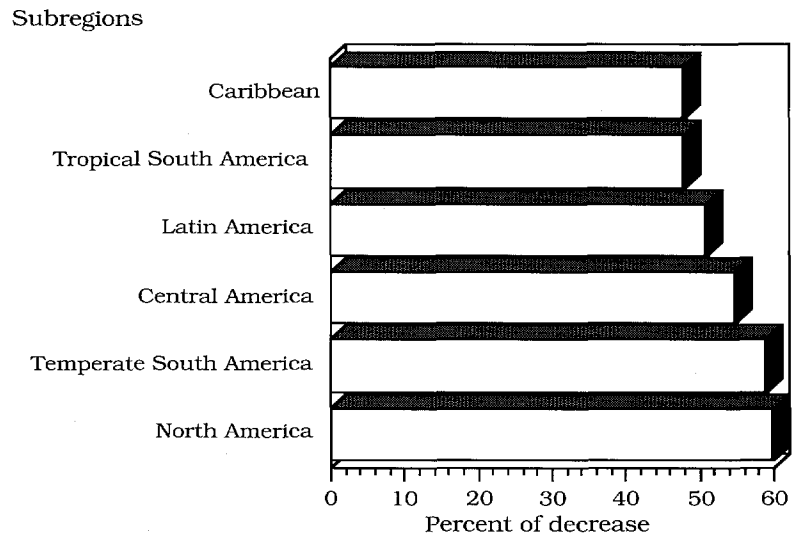


Source: Developed from PAHO/HST data, June 1990, and United Nations. (1988). Mortality under age 5. World estimates and projections 1950-2225. *Population Studies*, 105.

“others” due to a lack of medical certification of the cause of death. In Costa Rica, these causes are of less importance and congenital anomalies appear among the leaders. This change is even more noticeable in the United States. Nevertheless, it is worth noting that even in the United States, diseases that are preventable by immunization play as big a role in infant mortality as they do in Costa Rica.

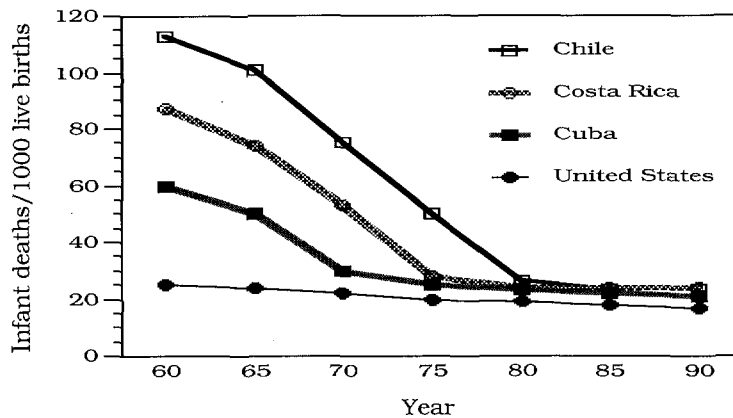
Data allow us to characterize the enormous regional heterogeneity in child health, which is largely the result of inequalities in socioeconomic conditions and access to health services. One indirect measure of the importance of socioeconomic

Figure 3.
Region of the Americas
The evolution of infant mortality;
Percentages of decrease over 30 years
(1950-55 vs. 1980-85)



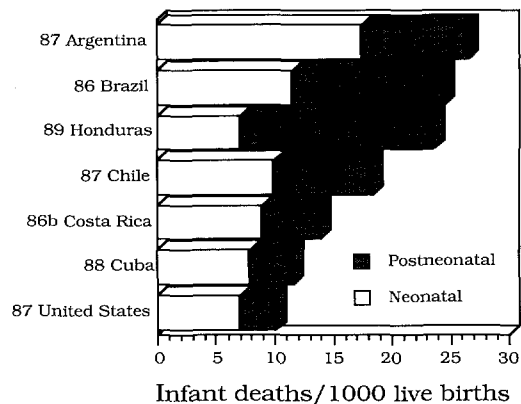
Source: Developed from PAHO/HST data, June 1990, and United Nations. (1988). Mortality under age 5. World estimates and projections 1950-2225. *Population Studies*, 105.

Figure 4.
Region of the Americas
Infant mortality rate of decrease over 3 decades
(1960 - 90)



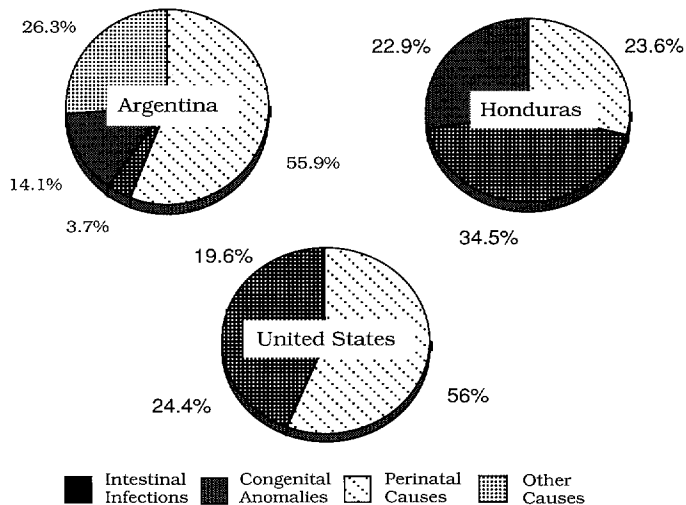
Source: Developed from PAHO/HST data, June 1990, and United Nations. (1988). Mortality under age 5. World estimates and projections 1950 - 2225. *Population Studies*, 105.

Figure 5.
Region of the Americas
Infant mortality rates - circa 1989; Neonatal and
postneonatal components (selected countries)



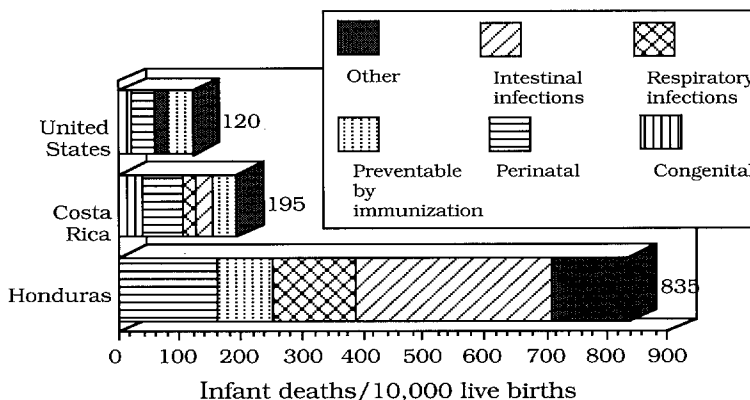
Source: Developed from PAHO/HST data, June 1990.

Figure 6.
Infant mortality
The primary causes of death (selected countries)



Source: Based on the most recent PAHO/HST data, June 1990.

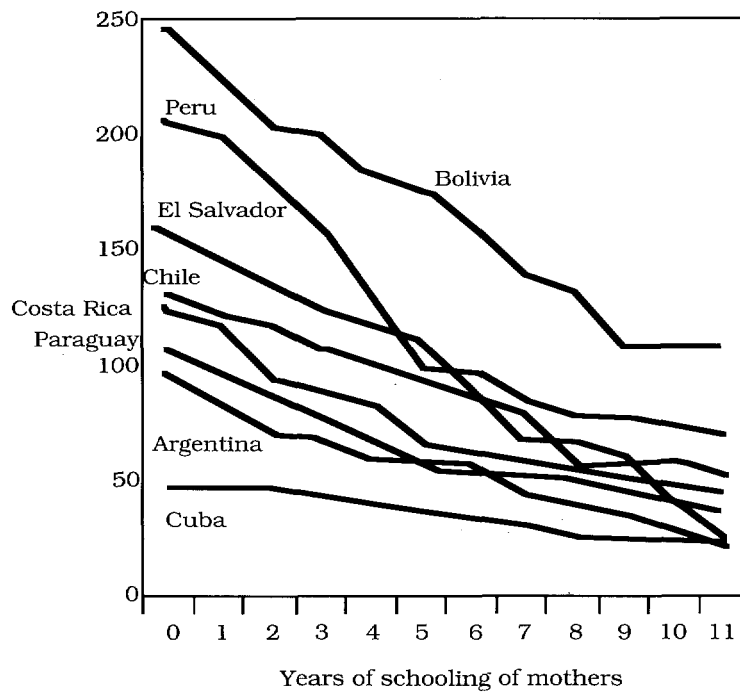
Figure 7.
Region of the Americas
Decline in infant mortality and changes in the leading causes (selected countries-circa 1980-85)



Source: CELADE. (1988). Childhood mortality in Central America, Panama, and Belize, 1975-85. Costa Rica.

conditions is the level of maternal education. In a classic study, Dr. Hugo Behm, of the Latin American Demographic Center detected that the probability of death in the first months of life is strongly influenced by the mother's educational level. In some countries, such as Bolivia and Peru, the differences in mortality in children of illiterate mothers and those of mothers having more than 10 years' of schooling are enormous: the difference in Bolivia is 250 versus 120, while in Peru it is 210 versus 70 (see Figure 8). Consequently, breastfeeding can have a particularly large beneficial effect in the lowest social classes and among mothers with low levels of education.

Figure 8.
Selected Latin American countries' risk of death between birth and 2 years of age by years of schooling of mother

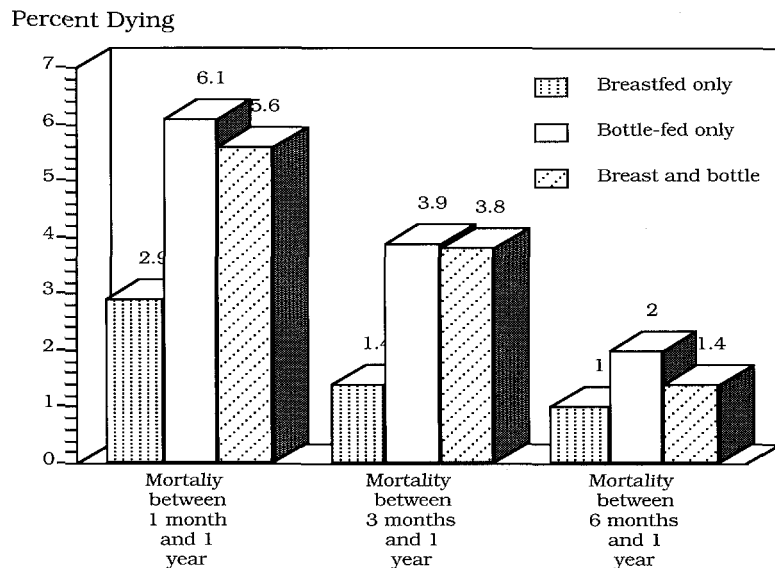


Source: Hugo Behm R., CELADE, Chile.

The study conducted by Milanesi and Plank in Chile compares the impact of exclusive breastfeeding, partial breastfeeding, and formula feeding on infant mortality. Exclusive breastfeeding was shown to have the biggest impact, lowering the infant mortality rate dramatically. The most noticeable difference in mortality was for children from 3 months to 1 year of age (see Figure 9).

Hospital practices were the focus of a study done in Costa Rica, which demonstrated that rooming-in improves the initiation and continuation of breastfeeding. An active in-hospital breastfeeding promotion campaign in 1977 led to a dramatic decrease in the neonatal mortality rate of at least 25% in the period 1977-1980 and practically eliminated deaths due to acute respiratory infections and diarrhea (see Figure 10).

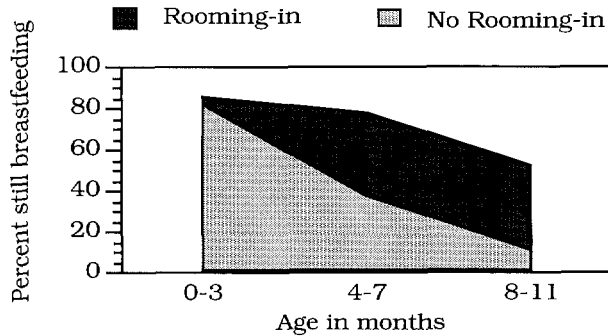
Figure 9.
Mortality for 3 different time periods during first year of life by sources of milk: rural Chile



Source: Galway, K., Wolff, B., & Sturgis, R. (1987). Child survival: Risks and the road to health. Columbia, MD: Institute for Resource Development/Westinghouse.

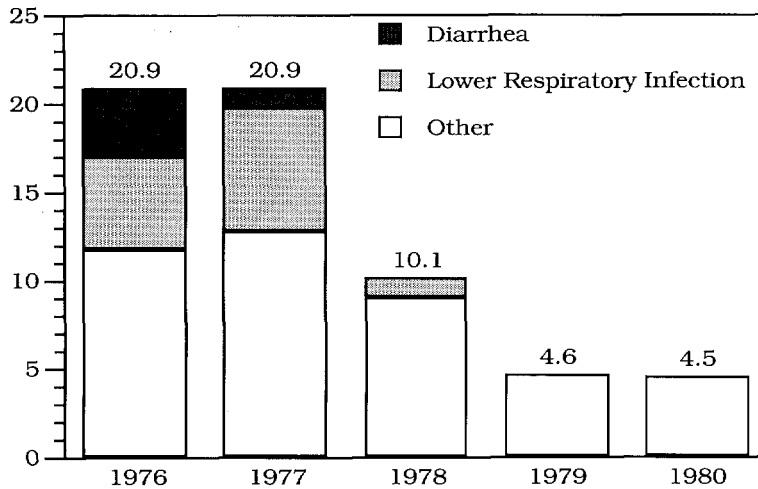
Figure 10.
Impact of breastfeeding promotion;
two examples from Costa Rica

Impact of rooming-in on level and duration of breastfeeding;
 two rural hospitals in Costa Rica



Impact of breastfeeding promotion on neonatal mortality

Newborns dying in first month of life/10,000 live births



Source: Galway, K., Wolff, B., & Sturgis, R. (1987). Child survival: Risks and the road to health. Columbia, MD: Institute for Resource Development/Westinghouse.

THE PAN AMERICAN HEALTH ORGANIZATION AND BREASTFEEDING

The Pan American Health Organization is working to promote and restore the practice of breastfeeding and to prevent the negative influence of Western child-rearing styles throughout the Americas. To achieve this, it is necessary to maintain traditional breastfeeding patterns wherever they are still practiced and establish them where they have been abandoned or did not exist previously.

The Maternal and Child Health (MCH) Program of PAHO is composed of a number of units:

- growth, development, and human reproduction
- control of diarrheal diseases
- immunizations
- control of acute respiratory infections
- perinatology

Breastfeeding is included in the activities of growth and development, control of diarrheal diseases, and perinatology. The MCH program also collaborates with PAHO's nutrition program in implementing PAHO's promotion strategy.

PAHO'S BREASTFEEDING PROMOTION STRATEGY

PAHO's strategy to promote breastfeeding has three main components:

1. The first is to take action at the community level, including utilization of all forms of mass media to stimulate the community to maintain and increase its practice of breastfeeding. The MCH program is in close collaboration

with PAHO's Office of Information and Public Affairs to produce audiovisual materials specifically designed to educate mothers about breastfeeding.

2. The second component is to work with the institutions responsible for the development of human resources, as well as the individuals themselves. The role of the nurse in breastfeeding promotion is essential because of her/his direct contact with mothers and their children. To prepare nurses for this role, the Expanded Program of Textbooks and Instructional Materials in PAHO's Program for the Development of Human Resources in Health has developed manuals and is producing an instructional module for health personnel to use in schools of medicine, nursing, and nutrition.

3. Working with hospitals, clinics, and other sites where births occur is the third component. Almost 70% of the births in Latin America take place in hospitals, and the tendency to institutionalize the birth process is widespread in all countries. Nevertheless, many institutions do not promote breastfeeding, and frequently, health professionals have negative attitudes towards both breastfeeding and rooming-in, a practice very important to the establishment of breastfeeding and of appropriate emotional bonding between mother and child. Therefore, in order to change both hospital practices and the attitudes of health professionals, it is necessary to educate all personnel about the importance of breastfeeding and its promotion. In this area, PAHO encourages maternity services to hold educational seminars and particularly encourages seminars that focus on the attitudes of health professionals toward breastfeeding.

Mothers that benefit from breastfeeding education in the hospitals and maternities can have a very positive effect serving as role models for their neighbors. They will generate interest in breastfeeding and contribute to its widespread practice as a means of reducing infant mortality, thereby cooperating with the achievement of one of the most important goals of Health for all by the Year 2000.

REFERENCES

Galway, K., Wolf, B., & Sturgis, R. (1987). Child survival: Risks and the road to health. Columbia, MD: Institute for Resources Development/Westinghouse.

Lattes, A., Farren, M., & MacDonald, Y. (Eds.). (1989). Salud, enfermedad y muerte de los niños en América Latina. Buenos Aires, Argentina: IDRC-CLACSO.

Moreno, E. M., Suarez Ojeda, E. N., & Anderson, C. F. (Eds.). (1989). Evaluación de servicios de salud materno-infantil. Buenos Aires, Argentina: Pan American Health Organization.

Pan American Health Association. (1979). Condiciones de salud del niño en las Américas (Scientific Publication No. 381). Washington, DC.

Pan American Health Association. (1990). Health conditions in the Americas 1985 - 1989 (Scientific Publication No. 524). Washington, DC.

Vargas Gonzalez, W., Argueda Soto, J., & Loria Cortes, R. (Eds.). (1980). Lactancia materna, Un problema medico-social. San Jose, Costa Rica: Caja Costarricense del Seguro Social.

PART III

B. SOME TECHNICAL ASPECTS OF LACTATION MANAGEMENT

Infant Positioning at the Breast during Breastfeeding: Essential Assessment and Technical Skills for Nurses and Lactation Clinicians

Karen Beck Wade

INTRODUCTION

It is widely accepted that successful breastfeeding is dependent upon several factors: the early initiation of breastfeeding after delivery; frequent, on-demand feedings facilitated by the close proximity rather than separation of mother and infant; and knowledgeable management of common breastfeeding problems. An essential element in knowledgeable breastfeeding management is the technique that is used by the mother to position the baby at the breast and to attach the baby's mouth around the areola and nipple. This technique is, essentially, "how-to breastfeed." The purpose of this paper is to sufficiently describe for the student nurse or novice lactation clinician the positioning of the baby in the mother's arms and the process of latching-on, or the attachment of the baby's mouth to the appropriate structures of the breast. Further, elements of assessing the infant's suckle and basic interventions to correct poor technique are described.

THE NEED FOR NURSES SKILLED IN BREASTFEEDING TECHNIQUE

From country to country and region to region, the length of hospital stay varies for the postpartum mother and her baby. In many instances, the mother and infant are discharged only a few hours after birth; in other settings, after several days. In most situations, however, the nursing couple is discharged before the mother's milk supply is fully established and before both the mother and infant are comfortable and skilled in the breastfeeding process. Therefore, an essential role of the hospital nurse in the hours or days prior to discharge from the hospital is to make sure that the mother has achieved a level of competency in breastfeeding technique and understands the basics of successful early lactation. Nurses in pediatric clinics or in community health

settings must also be skilled in breastfeeding education and technique in order to identify lactation problems early and to intervene appropriately.

THE IMPORTANCE OF POSITIONING TECHNIQUE

Frantz (1980), a North American pediatric nurse practitioner, reported that the way the infant was positioned at the breast could optimize or jeopardize the physiological processes of lactation. Further, she found that correct anatomical positioning at the breast significantly reduced or avoided the common problems of nipple trauma and breast engorgement that occur in the early postpartum period and frequently lead to early discontinuation of breastfeeding.

A mother's experience of pain in the nipple or breast during or after breastfeeding is an indication that the infant's oral structures are not correctly juxtaposed to the milk transfer structures underlying the nipple and areola. Pain signifies that an alteration in technique is needed so that the physiochemical and psychoneurohormonal dynamics of milk production and milk ejection can occur uninhibited. Uncorrected malpositioning and attachment to the breast lead to lactation failure, whether from the mother's inability to continue breastfeeding under painful conditions or from suppression of neurohormonal stimulation of the pituitary gland to continue milk production and milk ejection (Lawrence, 1987, 1985; Neifert & Seacat, 1986; Woolridge, 1986).

Since Frantz, others have written of their experiences in facilitating a correct attachment of the baby's mouth around the areola (Fisher, 1983; Wade, 1983; Minchin, 1985; Woolridge, 1986). A recent exchange of articles between Minchin (1989a, 1989b) and Walker (1989) suggests that although lactation clinicians agree that correct positioning is essential to breastfeeding success, there are differences of opinion in how optimal breastfeeding is best achieved.

The technical description that follows is intended to provide general, introductory guidance regarding breastfeeding technique to the student of maternal-child nursing or the novice lactation clinician. There are infinite variations on the techniques described

here which could be applied to an equally infinite variety of mother-baby dyads and/or cultural situations.

THE TECHNIQUE: Five Steps toward Successful Breastfeeding of the Healthy, Full-term Neonate

Note: Parts of the mother's body designated by "A" refer to the same side of the body as the breast being offered to the baby. Body parts "B" are those on the opposite side. It is preferable to alternate the first breast offered at each feeding so that if breast "A" was given first at one feeding, breast "B" would be offered first at the next feeding. These techniques assume a newborn who is awake, alert, and interested in the breast. A subsequent section describes techniques to assist the sleepy, nondemanding, or disinterested newborn.

STEP ONE: Positioning the Baby in the Mother's Arms (Three Postures)

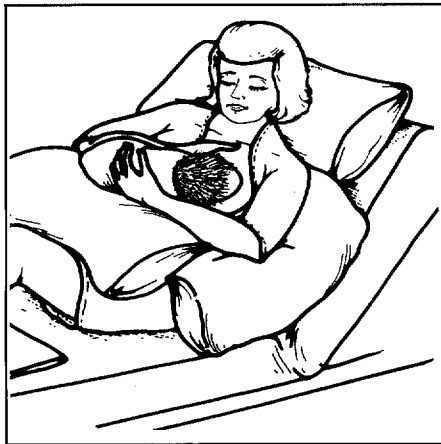
Objective: To bring the baby's body to the level of the mother's breast and to align the baby's body to facilitate ease of opening of the mouth for latching-on, suckling, and swallowing. The baby's face and mouth are facing the breast and are close enough to the nipple to grasp it without turning the head.

First Posture: Mother Seated/Cradle Hold

- With its head resting in the crook of arm "A", the baby's entire body should be on its side facing the mother's body. Mother and baby should be "chest to chest," with the baby's face at breast level.
- The mother may use hand "A" to hold onto the thigh or buttock of the baby's upper leg so that the baby's hips are flexed and at the same height as its head.
- Mother's elbow "A" holds the baby's lower arm in place around her waist.

- Pillows, folded blankets, or towels can be placed on the mother's lap and/or under her arms to assist her in bringing the baby to the level of the breast. (See Figure 1.)

Figure 1.



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Second Posture: Mother Seated/"Watermelon" or "American Football" Hold

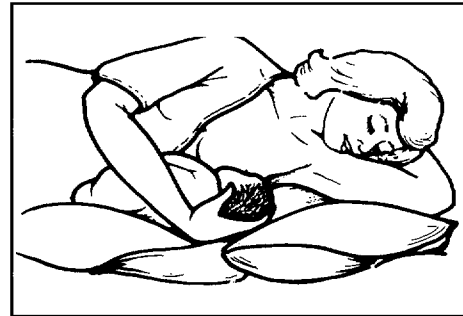
- The mother's back is firmly supported by the back of a chair, against the couch, or with pillows, if the mother is sitting in bed.
- The baby's torso is supported by the mother's forearm "A." The baby's head is held in hand "A" so that the mouth is directly in front of the nipple. The baby's buttocks rest against the back of the chair, with the legs curving up the back of the chair.

Third Posture: Mother Lying on Her Side

- Arm "A," on the bed, supports the mother's head. The baby is lying on its side, facing the mother, mouth at breast level. Mother pulls the buttocks of the baby close to her body with hand "B." Hand "B" may then support or caress the baby's body.

- Some women may need a pillow under the baby to help lift the baby to breast level. Or, in the event of abdominal tenderness due to cesarean section, a small pillow positioned to protect the abdomen may be helpful. (See Figure 2.)

Figure 2.



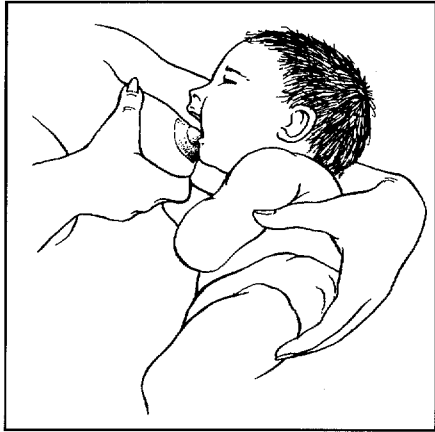
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STEP TWO: The Attachment of the Baby to the Breast

Objective: To have the baby draw the nipple and areola deep into the cavity of the mouth, forming a teat. The nipple is at the back of the throat. The jaws compress the lactiferous sinuses within the areola, behind the nipple.

- With the crook of arm "A" (and the baby's mouth) in line with breast "A," the mother lifts and supports breast "A" by sliding the four fingers of hand "B" underneath breast "A." Thumb "B" is placed on top of the breast, behind the areola.
- The mother stimulates the baby's mouth to open by moving breast "A" (with hand "B") so that her nipple very lightly brushes or tickles the baby's lips, particularly the lower lip. (See Figure 3.)
- Within several seconds, the baby's mouth will open slightly (similar in shape to the position the mouth takes when pronouncing the phonetic sound "oo").

Figure 3.



©Kaiser Permanente

- Continue the light tickling stimulation to the lip until the mouth opens very wide (as if pronouncing “aah”). At this point, the baby’s tongue will be cupped at the bottom of the mouth at the edge of the gum line. (See Figure 4.)

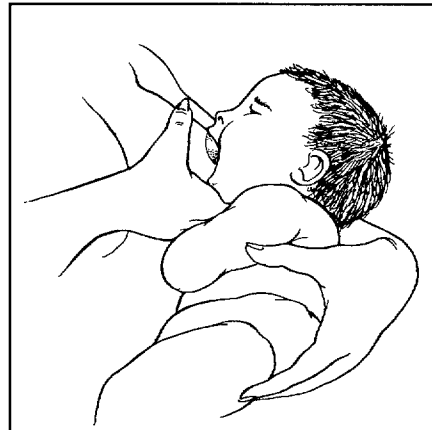
Figure 4.



©Kaiser Permanente

- With the nipple centered in front of the baby's mouth, the mother quickly draws the baby close onto the breast while the mouth is wide open. Correctly attached, the baby's upper and lower lips will be flanged/curved outward, and the baby's chin will be pressed firmly against the breast.
- The baby's buttocks are also pulled close so that the knees touch the mother's abdomen. The baby will have taken in a substantial portion of the areola. It is not necessary or possible for a very large areola to be completely inside the baby's mouth. (See Figure 5.)

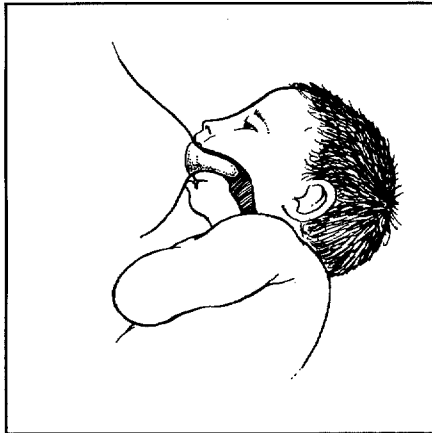
Figure 5.



©Kaiser Permanente

- With the first suckles, the baby's tongue and jaw compress the areola and the nipple and draw them deeper into the cavity of the mouth. (See Figure 6, a cutaway drawing.)
- For the first two weeks or so, it is helpful for the mother to maintain hand B in a lifting, supportive position throughout the feeding. As mother and baby become more experienced, this will not be necessary.
- Contrary to what may seem "natural" to the inexperienced mother, to avoid neck and back strain, she should lean her body back against the chair (if seated), rather than lean forward toward the baby.

Figure 6.



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STEP THREE: Observing and Understanding the Dynamics of an Effective Breastfeeding Episode

Objective: To understand the mechanisms of effective feeding in order to apply the principles of suckling and breastfeeding dynamics in assessing mothers and babies. The mother and baby are visibly relaxed and satisfied, and the mother is free of nipple pain during and after the feed.

- Once properly attached at the breast, the baby will begin to suckle using a rolling, peristaltic movement of the tongue (Weber, Woolridge, & Baum, 1986). The effective suckle appears to the observer to be a gentle, drawing, raising and lowering motion of the lower jaw as opposed to a biting or chewing motion. If the lower lip is gently pulled away from the breast, the tongue can be seen moving rhythmically, back and forth against the lower breast, extending itself beyond the gumline. Minchin (1989a) cites Gunther, “the whole breast-areola-nipple is rhythmically milked by compression of the sinuses and regular undulations of the tongue, which sweep the milk back to be swallowed.”
- During the first 2 to 3 days postpartum when the thicker colostrum is present, babies may suck several times before swallowing (Weber, Woolridge, & Baum, 1986).

- Once the milk has “come in,” the first milk ejection or “let-down” reflex of the feeding occurs after about 2 to 2.5 minutes of suckling (Woolridge, Baum, & Drewett, 1980). Most mothers have a physical sensation during the let-down of an increase in pressure, which they may describe as pressure, tingling, filling-up, and sometimes, pain.
- During this let-down phase, the milk begins flowing into the baby’s mouth at a much greater intensity and the infant must adjust his rate of suckling to accommodate the increased flow. The suckle to swallow ratio becomes about 1:1 (Weber, Woolridge, & Baum, 1986) with gulping, hard swallowing, and occasional choking. As the milk flow subsides for the duration of the feed, the infant will comfortably assume a pattern of 2 to 3 suckles per swallow, until the infant gradually and spontaneously stops suckling the breast.
- Ideally, the baby should be allowed to “finish” the first breast before being offered the second (Woolridge & Fisher, 1988). However, in the early feedings, switching the baby to the alternate breast after about 10 to 15 minutes of active suckling can help ensure that both breasts will be stimulated during the learning period.
- The observer also will note that the baby’s ability to coordinate and organize a suckle-swallow-breathing rhythm will improve markedly during the first week.
- A successful feeding is over when a) the infant has actively suckled and fallen into a contented sleep when satisfied (generally this occurs after both breasts have been suckled; sometimes one breast is sufficient if the mother has an overabundant milk supply or overactive let-down); b) the mother feels that the fullness in her breasts has been relieved; and c) there is no soreness or abrasion of the nipples.

STEP FOUR: Removing the Baby from the Breast

Objective: To avoid traumatizing the mother’s breast and nipple tissue, the suction created by the seal of the baby’s mouth around the breast must be broken gently.

- The mother places a finger from hand B at the corner of the baby's mouth and inserts it gently between the baby's gums. The suction is then broken and the baby may be safely drawn away from the breast.

STEP FIVE: Breastfeeding Assessment and Interventions

Objective: To assess the skill level of the nursing couple and provide appropriate interventions and teaching as necessary to achieve optimal breastfeeding technique.

Assessing the Infant

- Is the suckle rhythmic and coordinated with swallowing and breathing?

Intervention:

If the breast seems to be blocking the baby's breathing, the mother can try several things: pulling the buttocks of the baby in closer to her, lifting the breast a bit higher, and/or lowering elbow "A" slightly.

- Is there a gentle raising and lowering motion of the jaw, or is the baby seeming to bite down on the nipple or chew it? Is the baby's tongue moving rhythmically along the underside of the breast, extending across the gumline, or is the tongue pushing the breast out (as in tongue thrusting)?

Intervention:

If the baby appears to be having difficulty establishing a suckling rhythm, is moving its jaws up and down as if biting or chewing, or is pushing the breast out of the mouth, removal from the breast and careful reattachment is needed. Careful attention should be paid to stimulating a very wide opening of the mouth. Likewise, a malpositioned tongue can act as a physical barrier to the entry of the breast into the mouth. Waiting to attach the baby to the breast until the tongue has dropped to the bottom of the mouth and is at the gum line is worth the few extra seconds.

- Does the baby seem to be able to adapt to variations in the flow of milk throughout the feeding?

Intervention:

If the mother has a very strong milk ejection reflex, or “overactive let-down” the baby may have trouble adjusting to it as signified by ongoing choking, coughing, or pulling off the breast. Once the mother feels the let-down reflex or notices distress in the infant she can remove the baby from the breast briefly and express some milk into a towel or container until the intensity of the milk flow subsides. The infant can then be reattached and suckle with comfort. Contrary to certain beliefs, breastfed babies do swallow air during feedings and need to be burped. This is especially true of the baby whose mother has a vigorous ejection of milk.

Assessing the Mother’s Perceptions

- Does the mother report any pain or discomfort at the beginning, during, or after the feeding? This discomfort can be described as burning, stinging, throbbing, or soreness. A mother whose baby has bitten down on the nipple will have an immediate, acute pain reaction. If the trauma continues, the nipple may appear swollen, reddened, abraded, bruised, cracked, and/or fissured. It is necessary to check the condition of the nipples regularly in the early days.

Intervention:

A certain amount of nipple tenderness in the first 4 days postpartum is not uncommon as the breast tissue accommodates to the suckling of the infant and to the filling of the milk sinuses. Correct positioning and attachment technique can minimize this phenomenon and eliminate the more severe forms of nipple trauma: bruised, cracked, and/or bleeding nipples. A mother reporting any nipple discomfort should be assessed carefully regarding her attachment technique, particularly in stimulating a very wide open position of the mouth. The larger the opening of the mouth, the greater the likelihood that the nipple will be drawn to the back of the throat, avoiding compression on the nipple from the jaws and promoting effective compression of the lactiferous sinuses.

Some babies learn to open their mouths widely only after some teaching and practice. To help a baby learn to open its mouth widely and maintain it, the nurse can show the mother how to use the thumb or index finger "B" to further extend the natural opening of the mouth just prior to the actual attachment. Attaching the baby with a wide open mouth should provide a significant relief to a mother with sore nipples. If necessary, a finger maintaining gentle pressure in the cleft area of the chin throughout the feeding will help the baby learn to keep the mouth open wide throughout the feeding and will relieve the sensation of pain for the mother.

- If she does not report discomfort, does she look uncomfortable or distressed? Does her body position look relaxed or has she adopted a posture that will lead to neck, back, or arm strain?

Intervention:

Some women are hesitant to complain about any discomfort associated with breastfeeding. Facial expressions and any signs of body tension can be signals to the nurse that the mother may be in discomfort. When asked directly and specifically if they are experiencing any pain, these women may be more willing to describe their experience. Also, during the learning process, it is not unusual for a woman to be concentrating intently on learning to attach the baby to the breast. In the meantime, she adopts a position that will strain her neck, shoulders, or back. Pointing this out to her, experimenting with a more comfortable posture or chair, encouraging her to sit back, utilizing the support of additional pillows or blankets will help her discover a way of effectively holding her baby as well as being comfortable herself.

- How does the infant's suckle feel to her? Allow her to describe it. She should be able to describe something like a gentle pulling or tugging motion rather than chewing, biting, hard sucking, etc. When it feels "right," mothers commonly immediately say something like, "That's it" or "That's so much better."

Intervention:

Reinforce that breastfeeding requires learning for the mother and the baby, particularly in the first week. Help her to evaluate her progress by asking her to describe what she and the baby have learned so far and what they are still working on.

ASSISTING THE BABY WHO IS SLEEPY OR DISINTERESTED IN BREASTFEEDING

- Provide gentle stimulation to awaken and promote alertness in the infant: massage, change the diaper, bathe the baby. Avoid wrapping the baby too tightly and in too many layers of clothing as this extra warmth promotes sleepiness. Avoid lulling motion and sound. Likewise, avoid loud noises or sudden movement that startle or frighten the infant.
- Mother massages and pumps her breasts to achieve a let-down and continues this until a nipple and areola are soft. As an engorged areola and breast will be more difficult for the baby to latch on to, start on the least engorged side.
- If the baby remains sleepy while at the breast, frequent burping and switching to the alternate breast may help to keep the baby alert.
- The above should be done every 2 to 3 hours until the infant is able to demand feedings on its own.

CONCLUSION

Breastfeeding technique is a learned behavior for mothers and infants. In societies where breastfeeding is prevalent, this “art” is passed on from woman to woman, generation to generation. In areas with declining or eroding breastfeeding practice, nurses are in a critical position to promote and preserve breastfeeding. The development of clinical and technical skills to assist the nursing mother should be an essential component in the education of nursing students. The novice lactation clinician will grow in his or her skills and confidence only through careful observation and “hands-on” practice with actual breastfeeding mothers and babies. As with mothers and babies, practice will lead to effectiveness and success.

ACKNOWLEDGMENTS

The breastfeeding skills described in this paper have been developed through years of collaboration and discussion among lactation specialists. It can become difficult to clearly define where certain ideas or practices originated because many lactation specialists practice and teach but do not publish. The author expresses her gratitude to her husband, Christopher L. Wade, MD, MPH, for his support in the development of this paper and for his generosity over many years in sharing what he knows about lactation management with the author and countless others.

REFERENCES

Fisher, C. (1983). Positions of success. New Generation 3, 21.

Frantz, K. (1980). Techniques for successfully managing nipple problems and the reluctant nurser in the early postpartum period. In S. Frier and A. I. Eidelman (Eds.), Human milk: Its biological and social value (pp. 314-317). Amsterdam: Excerpt Medical.

Lawrence, R. A. (1987). The management of lactation as a physiologic process. Clinics in Perinatology, 14(1), 1-10.

Lawrence, R. A. (1985). Breastfeeding: a guide for the medical profession. (2nd ed.). St. Louis: C. V. Mosby.

Minchin, M. (1985). Breastfeeding matters. Sydney: Allen and Unwin.

Minchin, M. (1989a). Positioning for breastfeeding. Birth, 16(2), 67-74.

Minchin, M. (1989b). Author's response. Birth 16(2), 76-80.

Neifert, M. R., & Seacat, J. M. (1986). Medical management of successful breastfeeding. Pediatric Clinics of North America, 33(4), 743-762.

Wade, C. L. (1983). Every mother can breastfeed her baby. Journal of Health and Healing, 8(4), 8-10.

Walker, M. (1989). Commentary: another look at positioning for breastfeeding. Birth, 16(2), 74-76.

Weber, F., Woolridge, M., & Baum, J. D. (1986). An ultrasonographic study of the organization of sucking and swallowing by newborn infants. Developmental Medicine and Child Neurology, 28, 19-240.

Woolridge, M. W. (1986). The aetiology of sore nipples. Midwifery, 2, 172-176.

Woolridge, M. W., Baum, J. D., & Drewett, R. F. (1980). Does a change in the composition of human milk affect sucking patterns and milk intake? Lancet, 2, 1982.

Woolridge, M., & Fisher, C. (1988). Colic, "overfeeding," and symptoms of lactose malabsorption in the breast-fed baby: a possible artifact of feed management? Lancet, 28, 382-384.

Breastfeeding and Fertility*

Miriam Labbok

It is well known that breastfeeding has an effect on fertility and recent scientific study is beginning to explain the mechanisms and efficacy of breastfeeding for fertility regulation. If breastfeeding is used as a method for fertility control, two questions must be answered: 1) Can breastfeeding be used as an effective method of family planning? and 2) Can breastfeeding behaviors be modified to maximize the general fertility impact?

To use breastfeeding as a family planning method, the physiology of breastfeeding must be understood. The stimulation of the breast nipple by the infant during suckling interferes with the production of hormones that are necessary for ovulation and the maintenance of a pregnancy. During the postpartum period, if a mother does not breastfeed, prolactin levels will drop off rapidly. There will be a return to normal ovarian hormonal cycling by 6 to 12 weeks postpartum and the chances of pregnancy are increased. If the mother breastfeeds exclusively, a continued high level of prolactin will be produced. As long as intensive lactation continues, there will be suppression of these hormones and menstruation will be delayed. Pregnancy cannot occur without ovulation or without adequate hormonal support. As a natural child-spacing method, breastfeeding is very effective during the early postpartum months.

The breastfeeding practices necessary to suppress menstruation (also known as lactational amenorrhea) are frequent breastfeeding with no long intervals and the introduction of no other food or nipple to the infant. A major concern with the use of breastfeeding for fertility control is predicting the return of fertility. Past research has shown that menses return is associated with the return of fertility. However, the same researchers have noted that often ovulation will occur prior to any vaginal bleeding. In the early months postpartum, menses may be a reasonably good predictor of fertility return among fully lactating women.

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but after 6 months postpartum, menses is not a reliable predictor. This may be due to changing breastfeeding patterns as the baby grows and to the addition of complementary foods to the infant's diet.

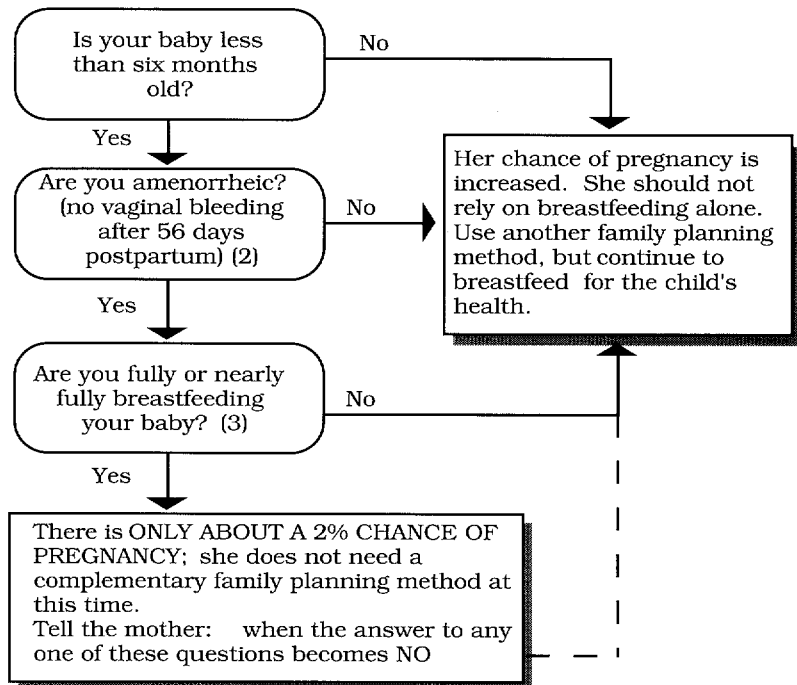
Demographers have observed that only 2% -12% of women who exclusively breastfeed become pregnant prior to menses return. The time to use an alternative child-spacing method will vary for each woman. Figure 1 can be used as a guide to determine if breastfeeding continues to be reliable on an individual basis. To develop community-wide guidelines on when lactating women should use other family planning methods, one must have a good knowledge of breastfeeding patterns and fertility rates for the community. This information can be used to determine when the majority of women should begin using another family planning method.

The optimal breastfeeding patterns are noted in Table 1. These patterns, if widely practiced, will decrease fertility in the postpartum months as well as provide adequate nutrition. A decline in breastfeeding incidence and duration would increase fertility rates significantly. In many countries, such as Bangladesh and Nepal, breastfeeding is a major factor in decreased fertility. Analyses of data from several countries reveal that a 25% decline in breastfeeding would result in a 2% -16% increase in fertility. The increase in contraceptive prevalence needed to offset this could be as great as 700 times the current rate of contraceptive use. High fertility carries health and economic implications, while increasing contraceptive use to this degree can be expensive and practically impossible.

Breastfeeding for fertility regulation is all the more important when viewed in the worldwide context. About 90% of all infants born in the world today are breastfed for some period of time. In the early months of life, the introduction of other foods is common, and in industrialized countries, weaning is often completed in the first 3-6 months of life. In developing countries, a much higher percentage of infants are breastfed and for longer periods. However, promotion of breastfeeding is vital to maintaining the high prevalence of full breastfeeding where it is widely practiced and to increasing the prevalence where it is declining. This has been done successfully in a number of developing countries.

Figure 1.
Use of Lactational Amenorrhea Method (LAM) for child spacing during the first 6 months postpartum (1)

Ask the mother:



(1) It must be noted that these guidelines are conservative. Women who follow these guidelines after 6 months postpartum, or who have experienced only one vaginal bleed, may still have some decreased fertility if the recommended optimal breastfeeding behaviors are followed (see Table 1). Furthermore, in many areas of the world, women may breastfeed for 18-24 months and remain amenorrheic for 12 months or more. These women may remain infertile for 12-15 months postpartum.

(2) Spotting that occurs during the first 56 days is not considered to be menses.

(3) "Full" breastfeeding includes exclusive or almost exclusive breastfeeding (with occasional tastes of ritual foods or water), day and night, according to recommendations in Table 1. "Nearly full" breastfeeding means that occasional nonbreast foods are given.

Table 1.
Recommended breastfeeding behaviors for optimal child survival and child spacing.

- Begin breastfeeding as soon as possible after the child is born, preferably immediately after delivery.
 - Breastfeed exclusively for the first 4 to 6 months.
 - After the first 4-6 months, when supplemental foods are introduced, breastfeeding should precede supplemental feedings.
 - Continue to breastfeed for at least two years.
 - Breastfeed frequently, whenever the infant is hungry, both day and night.
 - Continue to breastfeed, even if the mother or the baby becomes ill.
 - Avoid using a bottle, pacifiers (dummies), or other artificial nipples.
 - Eat and drink sufficient quantities to satisfy the mother's hunger.
-

The other benefits of breastfeeding cannot be overlooked. Perhaps the best known benefit of breastfeeding is its protection against illnesses such as diarrhea. Among breastfed infants, infant morbidity and mortality due to diarrhea is dramatically lower. There is also evidence of protection against respiratory infection, otitis media, and other infectious agents. A recent study from Brazil found the risk of death from diarrhea among breastfed infants to be 1/16 that of infants fed powdered milk and 1/4.5 that of infants fed infant formula.

Other protective effects of breastfeeding for the child include protection against development of certain lymphoma, diabetes, certain allergies, and some growth and development problems. Other studies indicate that breastfeeding protects against

subsequent heart disease, cancer, and obesity in adulthood and protects the mother against endometrial, ovarian, and breast cancer. The positive nutritional benefits of breastfeeding are well known.

There are also profound economic implications of reduced breastfeeding, both for the family and country. Recent studies have shown that increases in breastfeeding would easily save countries in Africa hundreds of millions of dollars in foreign currency expenditure. The cost to feed an infant formula can vary from about \$.50 to several dollars daily. In some communities, this amount represents a significant proportion of the total family budget. The cost savings related to health care vary from \$2.50-\$143.00 per diarrhea episode.

Breastfeeding is vital for child survival and aids in postpartum maternal recovery. Research must continue to fine-tune our guidelines and understanding, but studies show that the Lactational Amenorrhea Method works. Exclusive breastfeeding reduces fertility, breastfeeding saves lives, and breastfeeding should be promoted for family planning as well as for health.

REFERENCES

Buck, C., & Simpson, H. (1982). Infant diarrhea and subsequent mortality from heart disease and cancer. Journal of Epidemiology and Community Health, 36, 27-30.

Davis, M., Savits, D. A., & Graubard, B. I. (1988). Infant feeding and childhood cancer. Lancet, 2, 365-368.

Gray, R., Eslami, S., Labbok, M., Zacur, H., & Campbell, O. (1986). Prediction of ovulation return in breastfeeding mothers: report of an ongoing study. Fertility Determinants Research Notes. New York, NY: The Population Council.

Ho, M. (1988). Diarrheal deaths in American children: are they preventable? Journal of the American Medical Association, 260(22), 3281-3285.

Huffman, S., & Combest, C. (1988). Promotion of breastfeeding: Yes, it works. Washington, DC: Center to Prevent Childhood Malnutrition.

Kovar, M., Serdula, M. K., Marks, J. S., & Fraser, D.W. (1984). Review of epidemiological evidence for an association between infant feeding and infant health. Pediatrics, 74(4), 615-638.

Labbok, M. (1985). Consequences of breastfeeding for mother and child. Journal of Biosocial Science, 9(Suppl.), 43-54.

Labbok, M. (1982). Interactions of contraception and lactation. In J. Sciarra (Ed.), Gynecology and Obstetrics, Volume 6 (Chapter 36). Philadelphia, PA: Lippincott.

McNeilly, A. S., Glasier, A. F., Howie, P., Houston, M. J., Cook, A., & Boyle, H. (1988). Fertility after childbirth: pregnancy associated with breastfeeding. Clinical Endocrinology, 18, 167-173.

Phillips, J., & Feachem, R. (1987). Options for diarrhea control: the cost and cost-effectiveness of selected interventions. London, England: Evaluation and Planning Centre, London School of Hygiene.

Thapa, S., Short, R., & Potts, M. (1988). Breastfeeding, birth spacing and effects on child survival. Nature, 335(6192), 679-682.

Victora, C., & Smith, P. (1988, November). Case-control studies of the influence of breastfeeding on child morbidity and mortality: methodological issues. Abstract and paper presented at the Fourth International Workshop on Human Lactation.

PART III

C. HEALTH PROFESSIONAL EDUCATION

The Role of Physicians in Breastfeeding Promotion

John T. Queenan

Historically, physicians have demonstrated limited interest in breastfeeding. Until this century, there had been only empirical evidence of the advantages of breastfeeding over bottlefeeding for infant health and nutrition. Physicians recognized breastfeeding as the appropriate form of infant feeding, but had little to offer mothers who experienced difficulties or were looking for alternatives.

In the 1900s, advances in science and technology have changed the situation dramatically. Scientifically developed formulas, designed to resemble human milk and insure infant growth and nutrition, provided physicians with alternatives to recommend. In the field of nutrition, these formulas were popular because they were easy to measure and to quantify.

Change was also occurring on the social scene. Increased urbanization of society was breaking up extended families, thereby making it more difficult for women to rely on role models and support systems for successful breastfeeding. At the same time, more and more women were entering the work force and were separated from their infants for many hours at a time. It simply became easier not to breastfeed! With the new formulas, bottlefeeding was viewed as being as good as, or better than, breastfeeding.

Today, a major reversal is taking place. Physicians are gaining interest in breastfeeding. The same science that developed infant formulas now has demonstrated that formulas, as good as they are, are not the same as human milk. Formulas cannot provide the immunologic protection and other advantages that are unique to human milk.

Physicians are increasingly supportive of the practice of breastfeeding with their patients. Scientists are finding that breastfeeding is not the predominately instinctive behavior it was

assumed to be. Research is being performed in all aspects of breastfeeding to teach mothers how to breastfeed better. Women themselves are becoming interested in breastfeeding and are seeking out physicians who can help them, thereby creating consumer demand for physicians trained in lactation management. Consequently, the practice of breastfeeding is on the upswing in the United States, even among working mothers.

Many physicians, however, still remain unconvinced and uncommitted to the promotion of breastfeeding for their patients. The first step in making breastfeeding more acceptable to them is to emphasize why it is so important. In the United States and other developed countries, the unique nutritional properties of breastmilk and the immunological protection it affords should be stressed. These factors, together with the demonstrable increase in breastfeeding that is taking place, clearly indicate that promotion of breastfeeding is now a part of practicing good medicine.

In less developed countries, the role of breastfeeding in child survival and child spacing is crucial. Physicians, who are trained using a Western model that does not emphasize breastfeeding, should be encouraged to consider not only its nutritional and immunological factors but other benefits that are relevant to their countries' situation as well. These include

- decreased costs of breastfeeding compared to bottlefeeding
- decreased infant morbidity and mortality due to decreased exposure to pathogens in contaminated food, water, and utensils
- the ability of breastfeeding to delay the return of maternal fertility, which leads to longer intervals between births and lower infant and maternal mortality rates

It should be stressed that these benefits affect not only infants and their families, but the society and country as well.

Physicians' attitudes and recommendations greatly influence whether or not a mother is receptive to breastfeeding. Whether they personally promote breastfeeding or simply present a

balanced view of breast- and bottlefeeding, many physicians relegate this responsibility to pamphlets, brochures, preparation for pregnancy classes, and other educational materials. Even physicians who discourage breastfeeding should have comprehensive information available for their patients. It is necessary, therefore, that these materials be developed very carefully to ensure their accuracy, completeness, and appropriateness to their target audience. Of course, these high-quality materials must be made readily available, thus facilitating physicians' promotion of breastfeeding.

The key to the inclusion of physicians in breastfeeding promotion is education. Getting the word out about the advantages of breastfeeding is the first step. This can be accomplished in a variety of ways, including: seminars and conferences dealing with maternal and child health issues; regional and national seminars dedicated solely to lactation; in-service education; articles in peer review journals and other publications; and policy statements from medical organizations. This approach is the most appropriate for reaching those physicians already in practice. What about those who are yet to come? The answer seems to lie in providing greater emphasis on breastfeeding within basic medical school curricula. While the amount of information that a medical student needs to learn grows every year, accurate and up-to-date material on breastfeeding is available to the student but rarely emphasized. Information currently in the curriculum should be updated and revised periodically; breastfeeding should be given at least the same attention that is given to artificial feeding methods. Elective courses could be designed for those students with a particular interest in breastfeeding. Continuing education credits could be given for more advanced work, and specialized lactation management training courses could be developed. The curriculum in this volume can serve as a starting point.

What has been said about physician education is equally applicable to nursing education. For physicians and nurses to form a highly effective team in the promotion of breastfeeding, they must first become convinced of its importance in infant health and nutrition. Then, both must be equipped with the knowledge and skills necessary for the successful initiation and management of breastfeeding.

Breastfeeding in Nursing Education

Maricel Manfredi

As the twenty-first century draws near, poverty and the growing indebtedness of the less developed countries directly affect their possibility of achieving the goal of "Health for All By the Year 2000." Even these countries' efforts to reformulate the politics of health and extend the coverage of health services to the general population by means of primary health care cannot overcome these obstacles. In Latin America, we increasingly find growing sectors of the population that are subjected to a cycle of poverty and disease that has repercussions on all aspects of their lives. It has a particularly serious effect on mothers and children who are both the largest and the most vulnerable group. Therefore, actions that support mothers and children and can be carried out in the time that remains before the year 2000 take on a special relevancy. To achieve the best possible state of health, these activities should be encouraged and actively integrated into economic and social development as soon as possible (PAHO, 1979).

In both urban and rural areas, the lack of fertility regulation, the complications of pregnancy and childbirth, malnutrition, transmittable diseases, and diseases of infancy cause a large number of deaths and leave many invalids with limited capacity for production. Confronted with this reality, the goal of health for all acquires even more relevancy in that it is necessary to formulate policies, establish adequate strategies, and design plans of action that will maximally utilize financial and health resources (PAHO, 1982).

Breastfeeding, as an economically viable strategy within the areas of child survival, nutrition, and child spacing, is, in light of the previous discussion, of great importance. Nurses are the largest group among health professionals and work at all levels of health services. This puts them in the most direct contact with the population, thereby permitting communication between the individual and the system (Mahler, 1989). Therefore, nurses are the most appropriate personnel to widely support and promote breastfeeding through education, communication, and information. Studies carried out in Latin America (Pomo &

Olivares, 1983) show, nevertheless, that few countries are preparing nurses to assume a more active and effective role in breastfeeding support and management.

NURSING EDUCATION

Nursing education in Latin America has undergone tremendous transformations in the past 20 years, adjusting to the health needs of the population and new approaches to the provision of health services through primary health care. Many of these adjustments have gone much further than changes in nursing services and present contradictions between what is taught and what is practiced. One of the major challenges facing nursing education in Latin America in the future is to bridge the gap between faculty and service personnel so as to produce true changes in nursing practice.

Some of the possible strategies for change aim at the strengthening of continuing education programs, the integration of faculty and service personnel, the strengthening of specialization and master's level education, and finally, at decreasing the numbers of auxiliary personnel in relation to professional nurses. Currently, Latin America has a ratio of two auxiliary nurses per professional nurse, and in many countries, 60% of nursing care is provided by empirical personnel. Therefore, the introduction of breastfeeding into nursing curricula should constitute the first step toward breastfeeding promotion. Other steps, such as the education of auxiliary nurses and the training of personnel that work at the community level, also should be considered.

INTEGRATION OF BREASTFEEDING INTO CURRICULA

In the majority of nursing curricula, breastfeeding is but one topic within a range of maternal and child health and family planning courses. Little time is dedicated to detailing its benefits or providing students with sufficient practical experiences to acquire the skills necessary to teach it. Many times this is due to instructors' lack of information and knowledge about the subject, coupled with the beliefs and biases of teachers and students alike. Consequently, health professionals, in addition to society and families, are barriers to successful breastfeeding. Economic problems and cultural barriers also inhibit low-income women from breastfeeding (Araugo, 1984).

The proposal presented here is to include breastfeeding not only in the maternal-child health program but throughout nursing education. This is particularly important when new curricular focuses oriented toward the health of the community, rather than the health of the individual, are considered. This approach uses a wide population base, which allows the utilization of all levels of health services for learning and the development of course content around the most frequent health problems and needs of the community. Even more importantly, it permits the integration of preventive and promotional foci into the curriculum (Manfredi, 1988).

It is important that, beginning with basic science courses, breastfeeding be discussed when addressing a wide variety of topics. These might include the physiology of reproduction; cultural patterns and beliefs; psychological aspects and the value of breastfeeding as a means of mother-child bonding; educational needs of women of childbearing age; the promotion of the benefits of breastfeeding; and administration and workers' legislation.

In the maternal-child health program, these aspects can be reinforced and others can be emphasized. For example, during prenatal care, evaluation of the mother's physical capacity, emotional predisposition, and motivation for breastfeeding, including the potential role of the father and other important family members, can be used to develop an educational plan. This plan would include benefits of breastfeeding for child spacing, nutrition, child survival, and the emotional relationship of mother and child. The importance of emotional and technical support during the initiation of breastfeeding, as well as assistance to the mother in the postpartum period (both in the hospital and after she has gone home), should be fundamental elements of the education of the future nurse (U.S. Department of Health and Human Services, 1984).

A very important aspect of breastfeeding's integration into nursing curricula is to be able to offer students appropriate clinical sites for practice, i.e., in institutions that offer mothers an atmosphere that favors breastfeeding and provides the necessary support for its initiation.

One of the most important factors in the preparation of a professional is training that allows him or her, as an educator, to go beyond the mere transmittal of scientific information to the assumption of a conscious position that supports breastfeeding. This position should be made obvious not only in what they teach, but also in their attitudes as educators. The educational intervention techniques suggested by diverse authors that promote breastfeeding should be known and practiced by the students (Marin, 1980).

Nursing and educational expertise must be applied to the development of an integrated module for the teaching of breastfeeding during the preparation of the future professional nurse. The form in which the knowledge and practice of learning is integrated can vary according to the different curricular orientations of each school. It is important that nursing leaders act in the future to effect change in their countries and in schools, and that professors and students understand and analyze the importance of promoting breastfeeding as a way of contributing to the physical and mental health of the mother and child, and to decrease maternal-child morbidity and mortality.

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REFERENCES

Araugo, J. D. (1984). Promoting breastfeeding: A national perspective. Public Health Report, 99(6).

Mahler, H. (1989). Why Leadership for Health for All. Paper presented at the Conference on Leadership in Nursing for Health for All. Tokyo, Japan.

Manfredi, M. (1988). La Formacion para el Liderazgo de Enfermeria. Paper presented at El Cursillo de Enfermeria. Valladolid, Spain.

Marin, B. V. (1980). Promocion de la lactancia materna mediante una accion educativa dirigida a mujeres embarazadas. Boletin de la Oficina Sanitaria Panamericana, 104(1), 14-22.

Pan American Health Organization. (1979). Condiciones de salud de los ninos en las Americas (Scientific Publication No. 381). Washington, DC.

Pan American Health Organization. (1982). Health for All by the Year 2000. Plan of Action for the Implementation of Regional Strategies (Official Document No. 179). Washington, DC.

Pomo, M. E., & Olivares, S. (1983). Ensenanza de la nutricion en la formacion de los profesionales de la salud de la Universidad de Chile. Revista Chilena de Nutricion, II (1).

U.S. Department of Health and Human Services. (1984). Report of the Surgeon General's Workshop on Breastfeeding and Human Lactation (DHHS Publication No. HRS-D-MC 84-2). Washington, DC: U.S. Government Printing Office.

Breastfeeding Education for Baccalaureate Nursing Students

Eileen Fishbein

New mothers do not identify health professionals as important in influencing their decisions regarding breastfeeding. This may be related to the paucity in the research literature on teaching breastfeeding to nurses and other health providers, despite support for the concept of breastfeeding presented in textbooks and by health organizations. Coupled with a lack of societal support, mothers considering this method of feeding may be lacking optimal professional assistance.

A recent extensive literature search produced virtually no publications relative to the teaching of breastfeeding to nursing students. What was apparent in the literature was the overriding impression that mothers usually decide prior to pregnancy or early in their prenatal course how they will feed; and that while books and pamphlets do influence feeding decisions, social support from family and friends is equally important. Surveys show that health professionals are generally not important in influencing the decision to breastfeed* and that the caregiver's knowledge of the subject is often scanty (Aberman & Kirchhoff, 1985; Coreil & Murphy, 1988; Helsing, 1976; Kowalski, 1983). The view that health professionals have minimal influence on decision making about breastfeeding has important implications for educators.

A review of current textbooks commonly used in baccalaureate nursing programs reveals support for the position taken by the American Academy of Pediatrics, the World Health Organization and others in encouraging the promotion of breastfeeding because of its physiologic, nutritional, immunological, and psychological benefits (Holmes & Magiera, 1987; Jensen & Bobak 1985; Neeson & May, 1986; Olds, London, & Ladewig, 1988). Although acknowledgment is made of the fact that some mothers choose not to breastfeed, and for many this is the appropriate choice, advocacy of breastfeeding is the apparent bias.

*Editors note: Other studies, including some mentioned in this volume, indicate just the opposite.

Similarly, nursing students are, in my own clinical setting, (Georgetown University hospital, Washington, DC, USA) exposed to more time with the breastfeeding than with the bottlefeeding mother. This is due, in part, to the fact that breastfeeding mothers require more teaching and support during the early postpartum period in order to have a satisfactory experience than do bottlefeeding mothers. Additionally, in this particular clinical setting, there is a nurse lactation specialist who conducts a daily breastfeeding class and provides individual consultations when patients are referred by the nursing staff. Students are encouraged to attend and participate in these sessions.

In the classroom setting of the baccalaureate school of nursing at Georgetown University in which I teach, an attempt is made to provide a balanced presentation of the advantages and disadvantages of breast vs. bottlefeeding. After all, more than half of all mothers continue to elect to bottlefeed in the United States, despite the increasing percentage of women who breastfeed.

Pertinent information for students is integrated into the didactic content on prenatal, postpartum, and newborn care in a family-centered framework. For example, topics are included that address prenatal education and decision making regarding feeding, as well as infant care in the early postpartum period where feeding techniques and facilitation of attachment behaviors are discussed. Both maternal and infant nutrition are included in postpartum classes. The latter topic addresses the comparison of human breast milk and formulas.

Helsing (1976) noted that in rural societies where the breastfeeding tradition is still intact and young mothers learn how to handle breastfeeding problems from supportive family and friends, the best policy for health professionals is non-interference. However, where the traditional knowledge and support have been lost, as often occurs in transitional and urban societies, the incidence of breastfeeding declines unless lactation education takes place.

This has particular relevance for schools of nursing because, as noted, mothers often decide on a feeding method early in pregnancy. Therefore, if nurses wish to influence decision

making by mothers, there must be increased clinical exposure for students to prenatal patients in community settings where education of patients is more likely to have a significant effect. Situations in which students can practice their counseling and education skills can be found in community health centers, in physician and midwife offices, on home visits, and in prenatal education classes for couples.

While the subject of breastfeeding remains an important issue in our time, its roots long preceded the twentieth century. It is said that artificial feeding vessels appeared shortly after humans adopted herding and agrarian lifestyles. During that time, it is believed that animal milk and grains were substituted for human milk (Kowalski, 1983).

Based upon this information and other historical documents, it is apparent that the controversy over infant feeding methods is quite an old one. The history is of a cycle from natural to artificial methods of feeding and back again. Such a history reinforces Helsing's belief (1976) that "as far as the human mother is concerned breastfeeding is hardly an instinctive act." Health-care providers are needed who have been educated to present appropriate information for breastfeeding mothers, who can understand and treat common problems based on sufficient experience and insight, and who are able to provide the psychological support so commonly lacking in our contemporary society.

REFERENCES

Aberman, S., & Kirchhoff, K.T. (1985). Infant feeding practices: Mothers' decision making. Journal of Obstetrical, Gynecological and Neonatal Nursing, 14(5), 394-398.

Coreil, J., & Murphy, J. (1988). Maternal commitment, lactation practices, and breastfeeding duration. Journal of Obstetrical, Gynecological and Neonatal Nursing, 17 (4), 273-278.

Helsing, E. (1976). Lactation education: The learning of the obvious. CIBA Foundation Symposium, 45, 215-230.

Holmes, J., & Magiera, L. (1987). Maternity nursing. New York: Macmillan.

Jensen, M., & Bobak, I. (1985). Maternity and gynecologic care (3rd Ed.). St. Louis: C. V. Mosby.

Kowalski, K. (1983). Infant nutrition. In L. Sonstegard, K. Kowalski & B. Jennings (Eds.). Women's Health. Vol. II. Childbearing. New York: Grune and Stratton.

Neeson, J., & May, K. (1986). Comprehensive maternity nursing. Philadelphia: J. B. Lippincott.

Olds, S., London, M., & Ladewig, P. (1988). Maternal newborn nursing (3rd Ed.). Menlo Park: Addison Wesley.

PART IV
THE PAN AMERICAN BREASTFEEDING
SEMINAR



Overview

Lois A. Schaefer

The Pan American Breastfeeding Seminar for Nursing Faculty, organized and hosted by the Institute for International Studies in Natural Family Planning, Georgetown University, took place 26-30 June 1989 in Washington, D.C. The Pan American Health Organization collaborated in its implementation, and funding was provided by the United States Agency for International Development.

In recognition of the importance of breastfeeding in infant nutrition, child survival, and child spacing, and the influential role that nurses can play in the promotion of breastfeeding if provided with the appropriate knowledge and skills, the objective of the seminar was to develop a curricular breastfeeding module for integration into nursing schools in Latin America. This was seen as the first phase of a larger project that will include the implementation of the module in nursing schools and evaluate the module's impact on breastfeeding practices.

To develop the module, 25 nursing faculty, educators, physicians, and service personnel were invited to Georgetown University from 11 Latin American countries. The countries were, Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, and Peru. The combination of faculty and health service personnel ensured that expertise in curriculum development, the scientific basis of breastfeeding, and its technical and practical aspects were available to the group during the development of the module.

After agreeing on the thematic units of the curriculum, the participants spent the majority of their time in small working groups, delineating the objectives, core content, teaching methodologies, resources needed, and evaluation criteria for each unit. General consensus was reached on the framework developed prior to closure of the seminar. An initial draft of the module was put together by the institute and circulated for review among the participants and institute and PAHO staff. The resulting revised draft was then shared with appropriate outside

reviewers who possess breastfeeding and formal nursing education expertise. The module was very well received and the end product appears in this publication.

With this module, comprised of a curriculum and its accompanying documents, we have moved on to the second, or testing, phase of the project. Many participants are already utilizing portions of or the entire module in their institutions and are planning to integrate it into their schools' basic curricula or into in-service training programs. Test sites in the United States and Europe also have been identified.

We believe that this breastfeeding module is an important contribution not only to nursing education, but to the education of all health professionals. Equipped with the knowledge and skills that it imparts, health professionals will be better prepared to promote breastfeeding and provide breastfeeding education and services to their clients.

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SEMINAR CHAIRPERSONS AND SPEAKERS

Opening Session, June 26, 1989

Chair:

Dr. Victoria Jennings
Director, Applied Natural Family Planning
Institute for International Studies in Natural Family
Planning
Georgetown University
Washington, D.C.

Speakers:

Dr. John F. Griffith
Executive Vice President for Health Sciences
Director, Medical Center
Georgetown University
Washington, D.C.

Dr. Elbio Nestor Suarez Ojeda
Maternal and Child Health Program
Pan American Health Organization
Washington, D.C.

Dr. James Shelton
Chief, Research Division
U.S. Agency for International Development
Washington, D.C.

Rosalia Rodriguez-Garcia
Director, Education and Communication
Institute for International Studies in Natural Family
Planning
Georgetown University
Washington, D.C.

Plenary Session, June 26, 1989

Chair:

Dr. Alma S. Woolley
Dean, School of Nursing
Georgetown University
Washington, D.C.

Speakers:

Maricel Manfredi
Regional Advisor on Nursing Education
Pan American Health Organization
Washington, D.C.

Dr. Audrey Naylor
Co-Director
Wellstart
San Diego, California

Judy Canahuati
Technical Advisor in Breastfeeding
PROALMA
San Pedro Sula, Honduras

Dr. Miriam Labbok
Director, Maternal and Child Health Research
Institute for International Studies in Natural Family
Planning
Georgetown University
Washington, D.C.

Closing Session, June 30, 1989

Chair:

Carol Dabbs
Cognizant Technical Officer
Office of Population
U.S. Agency for International Development
Washington, D.C.

Speakers:

Nelly Farfan
Regional Advisor in Maternal-Child Health
Pan American Health Organization
Caracas, Venezuela

Dr. Judith Melson
Director for Nurse-Midwifery
Graduate Program
School of Nursing
Georgetown University
Washington, D.C.

Dr. John T. Queenan
Chairman, Department of Obstetrics and Gynecology
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Washington, D.C.